



MURRAY REGION COUNCILS

**STATE OF THE
ENVIRONMENT**

3rd SUPPLEMENTARY REPORT 2006/07

Prepared for Murray Region Organisation of Councils (MROC) by:

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CONTENTS

1.	INTRODUCTION	1
2.	THE MURRAY REGION	3
3.	NEW ENVIRONMENTAL IMPACTS.....	5
4.	TRENDS IN ENVIRONMENTAL INDICATORS	7
4.1	LAND	7
4.2	ATMOSPHERE	15
4.3	WATER	29
4.4	BIODIVERSITY	39
4.5	HUMAN SETTLEMENT	53
5.	CONCLUSION.....	64
6.	REFERENCES	66

FIGURES

Figure 1: Local Government Areas included in the SoE report	3
Figure 2: Shallow groundwater salinity in the MIL region 2006	9
Figure 3: Change in depth to watertable area (ha), March 2007	9
Figure 4: Road length 2005/06 - kilometres	11
Figure 5: Licensed drivers 2006	17
Figure 6: New vehicles registered 2006	17
Figure 7: Mean minimum and maximum monthly temperature – 2006/07 vs historical	18
Figure 8: Seasonal conditions 2006/07	30
Figure 9: Monthly rainfall 2006/07 against the historical average.....	31
Figure 10: Potable water consumption 2004/05	34
Figure 11: Levels of water storages servicing the region 2005/06	35
Figure 12: Salinity levels in the regions rivers	37
Figure 13: Enumerated Population at 2006 Census.....	54
Figure 14: Recorded crime statistics 2006	56
Figure 15: Domestic waste 2004/05 kg per capita & % change from previous year.....	58
Figure 16: Recyclables 2004/05 kg per capita & % change from previous year.....	60
Figure 17: Recreation 2004/05 \$ per capita & % change from previous year	60
Figure 18: Community services 2004/05 \$ per capita & % change from previous year.....	61
Figure 19: Environmental management and health 2004/05 \$ per capita & % change from previous year	61

TABLES

Table 1: LGA's affected by soil salinity.....	8
Table 2: Number of Landcare groups in each LGA.....	10
Table 3: Changes to roads within specified LGAs.....	11
Table 4: Number of subdivisions, new lots and new dwellings approved in 2006/07	14
Table 5: Designated development approved during 2006/07	14
Table 6: Pollution complaints received during 2006/07	15
Table 7: Kilometres travelled & fuel consumed by Council vehicles in 2006/07	16
Table 8: Permits and approvals for each LGA for stubble burning and solid fuel heaters during 2006/07	19
Table 9: DECC issued Environment Protection Licences for Scheduled Premises.....	20

Table 10: Water consumption & charges	32
Table 11: Outbreaks of blue-green algae during 2006/07	36
Table 12: Vegetation clearing activities for each LGA.....	46
Table 13: Weed control coordination for 2007/08.....	49
Table 14: New and continuing group projects budget allocations for 2007/08	49
Table 15: Council's commitment to weed control during 2006/07	50
Table 16: Council's commitment to locust and pest animal control during 2006/07	51
Table 17: Council's commitment to dog and cat control during 2006/07	52
Table 18: Bushfire incidences and changes to bushfire prone land during 2006/07.....	53
Table 19: Population of each LGA at 2006 Census in relation to its area	54
Table 20: Unemployment Rate at 2006 and 2001 Census and Median Income in 2006 for each LGA.....	55
Table 21: Management and control of waste landfill sites during 2006/07	57
Table 22: Waste recycling during 2006/07	59
Table 23: Noise complaints during 2006/07	62
Table 24: Heritage listings during 2006/07	63

ACRONYMS & ABBREVIATIONS

Bal	Balranald LGA
Ber	Berrigan LGA
Con	Conargo LGA
Cor	Corowa LGA
CMCC	Central Murray County Council
Cul	former Culcairn LGA
GH	Greater Hume LGA
DEC	Department of Environment & Conservation (now DECC)
DECC	Department of Environment and Climate Change
Den	Deniliquin LGA
DNR	Department of Natural Resources (now DWE)
DPI	Department of Primary Industries
DWE	Department of Water and Energy
EPBC Act	Commonwealth <i>Environment Protection & Biodiversity Conservation Act 1999</i>
ERP	Estimated Resident Population
Hol	former Holbrook LGA
Hum	former Hume LGA
Jer	Jerilderie LGA
LEP	Local Environmental Plan
LGA	Local Government Area
MCMA	Murrumbidgee Catchment Management Authority
MIL	Murray Irrigation Limited
MROC	Murray Region Organisation of Councils
Mur	Murray LGA
NSW	New South Wales
RLPB	Rural Lands Protection Board
SLA	Statistical Local Area
SoE	State of the Environment
TSC Act	NSW <i>Threatened Species Conservation Act 1995</i>
Wak	Wakool LGA
Wen	Wentworth LGA

TERMS

“the principal report”	the MROC State of the Environment Report 2003/04
“the supplementary report”	the third supplementary SoE report 2006/07
“the area” or “region”	the area addressed by the SoE Report

1. INTRODUCTION

This is a Supplementary Report to the principal State of the Environment (SoE) Report prepared for Murray Region Organisation of Councils (MROC). It is the third Supplementary Report to be prepared following the preparation of the 2003/04 principal report in December 2004.

A State of the Environment (SoE) report represents a review and record of the status of the 'environment' over a particular area. More specifically, and within the context of the New South Wales *Local Government Act 1993*, a SoE report provides a summary of the attributes of the environment within which local government functions and the impacts of activities on that environment.

Each Council must prepare a principal SoE report at the end of the year in which a new Council is elected. This report must be comprehensive and address the eight environmental sectors of land, air, water, biodiversity, waste, noise, Aboriginal heritage and non-Aboriginal heritage. For the purposes of the principal SoE report for MROC the environmental sectors of waste, noise, Aboriginal heritage and non-Aboriginal heritage have been collapsed under one heading of 'human settlement' largely due to the lack of data available in each of these categories. Consequently the SoE report addresses five categories and not eight.

Supplementary SoE reports are required to be submitted within five months of each subsequent year (i.e. by November 30th) leading to the next local government election. The purpose of supplementary reports is to identify any new environmental impacts since the last principal SoE report and update any trends in environmental indicators that are important to each environmental sector.

Although each Council in NSW is required to prepare and lodge a SoE report, reporting at the regional level is encouraged by the Department of Local Government. Ten councils within the Murray Region of NSW have opted for the regional approach to SoE reporting under the umbrella of its peak body the Murray Region Organisation of Councils (MROC)¹. The Councils involved in the SoE report are Balranald, Berrigan, Conargo, Corowa, Deniliquin, Greater Hume, Jerilderie, Murray, Wakool and Wentworth.

There are some limitations to the data and information presented in the third supplementary report that need to be acknowledged, including:

- The amalgamation and realignment of boundaries in 2004 involving the LGA's of Albury, Corowa, Hume, Culcairn, Holbrook and Tumbarumba has complicated data gathering as some of it is based on now redundant LGA boundaries. Where data and information is only available for the area of the former LGA's and consolidation is not possible, it is presented as such.
- For the sake of convenience, some data sets referring to the Greater Hume LGA are represented by the amalgamation of former Hume, Culcairn and Holbrook LGA's. This ignores the fact that parts of the former Hume Shire were acquired by

¹ Wentworth is not a member of MROC. Albury and Hay LGA's are also members of MROC but are not participating in this SoE Report.

the Albury and Corowa LGA's and a small part of the Holbrook LGA by the Tumbarumba Shire. With the passing of time it is expected more data sets will reflect the new LGA boundaries.

- Despite an exhaustive search of databases and information sources across government, non-government and community organisations, there remains a lack of both qualitative and quantitative environmental data for non-metropolitan inland areas of NSW. Data for the purposes of identifying trends (time series) can also be difficult to source.
- A lot of data takes time to be made publicly available and as such even information released during 2006/07 can already be up to three years old. Consequently some of the updates provided in this 3rd Supplementary Report are not for the 2006/07 reporting period.
- Although Council's are provided with the same template for the purposes of collecting local data, there are gaps and inconsistencies in the way the data is presented in this report as Council's unintentionally respond in different ways.

2. THE MURRAY REGION

The area addressed in this supplementary report includes most of the member LGA's of Murray Region Organisation of Councils (MROC), namely:

- Balranald
- Berrigan
- Conargo
- Corowa
- Deniliquin
- Greater Hume
- Jerilderie
- Murray
- Wakool
- Wentworth

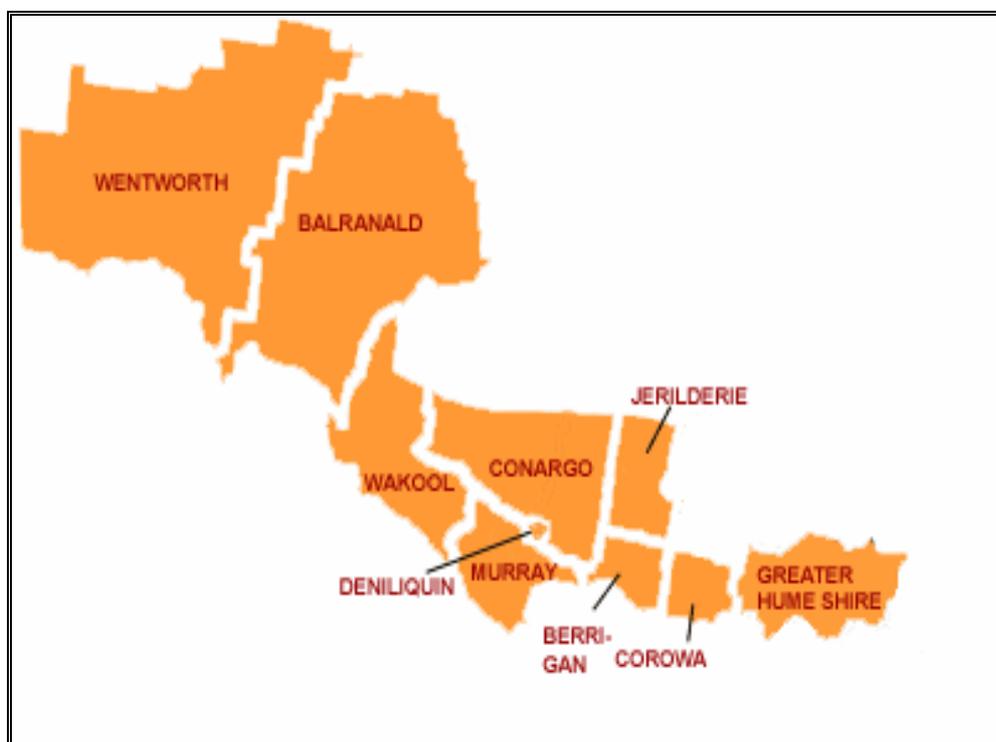
The area extends along much of the state boundary between NSW and Victoria, being the Murray River from Albury to Wentworth (see Figure 1) and represents a 'strip' along the northern side of the river varying in width between 50 and 150km.

The Murray River on the NSW border forms the southern boundary of the region. The terrain varies from flat in the western and central areas to very rugged on the eastern border (Department of Local Government 2001). The area covers approximately 80,000 square kilometres and contains approximately 60,000 people.

Population density is greater in the east as is the frequency of urban settlements with the largest township in Deniliquin, which is central to the area.

The area is largely rural in character and features a range of both dryland and irrigated agricultural activities including cereal and oil crops, sheep and cattle, viticulture, horticulture and rice growing.

Figure 1: Local Government Areas included in the SoE report



(Source: NSW Department of Local Government 2001)

Rainfall increases from west to east and varies between 300mm and 700mm per annum across the area. Although there is little difference in the temperature profiles between LGA's, Greater Hume would have more than twice the average annual rainfall of Wentworth.

Likewise population density generally increases from west to east across the region. With Corowa picking up the township of Howlong at the expense of Greater Hume in the 2003 LGA boundary adjustments, this municipality is now the largest in the region in terms of population. Only Corowa and Greater Hume have populations in excess of 10,000 in the Murray region (see Section 4.5).

3. NEW ENVIRONMENTAL IMPACTS

Council's have advised of the following new environmental impacts affecting their LGA in 2006/07.

Balranald

- An Aboriginal place of significance was identified and gazetted in 2005/06 period, however was not recorded in the 2nd supplementary SoE report.
- A report 'fish kill' was reported in Lake Benanee. Results concluded that the event was due to extreme hot weather and harsh drought conditions.
- Council has complied with the new water restrictions placed on the Murray and Tributaries greater area.
- The Murrumbidgee Catchment Management Authority (MCMA) reported one outbreak of blue-green algae on the Murrumbidgee River at Redbank Weir.

Berrigan

- Council has complied with Stage 4 water restrictions introduced from 1st July 2007.
- Two new reservoirs constructed at Tocumwal to collect and store stormwater for recycling and reuse at golf course.

Conargo

- A designated development application for a 30,000 head sheep feedlot was approved.

Corowa

- 54 threatened species which are known or predicted to occur in the Shire.
- New sewerage treatment plant proposed for Mulwala. Construction to commence in August 2008.

Deniliquin

- Council has complied with Stage 1 water restrictions between March and July, 2007.

Greater Hume

- Council has complied with Stage 2 water restrictions between July 2006 and June 2007; Stage 4 water restrictions between July and October 2007 and Stage 3A water restrictions commencing in November 2007.

Jerilderie

- A designated development proposal for the construction of Berrigan Stormwater Escape Channel for the Murray Irrigation Limited (MIL) was approved.
- Council has complied with Stage 1 and Stage 2 water restrictions.

Murray

- Council has complied with water restrictions.

Wakool

- Council has complied with Stage 3A water restrictions.
- Council has reported numerous outbreaks of blue-green algae.
- Council has experienced 14 wildfires.

Wentworth

- One outbreak of blue-green algae was recorded which lasted for approximately six months.

In addition to these trends, any environmental data that was not previously presented in the principal or first supplementary SoE Report has been sourced for the purposes of the third supplementary report. This data and information is detailed in the following section.

4. TRENDS IN ENVIRONMENTAL INDICATORS

This section of the report is structured along the same lines as that presented in the principal, first and second supplementary SoE report in that data and information is presented under one of the five environmental categories being land, atmosphere, water, biodiversity and human settlement.

It is not the purpose of this supplementary report to reiterate data and information on the environment that has already been presented in the principal, first and second supplementary SoE report. Consequently, where information and/or data presented in the principal, first and second supplementary SoE report cannot be updated, it has not been included in this supplementary report. Therefore the trends in environmental indicators detailed below are based on either:

- updated information and data provided in the principal, first and second supplementary SoE report (i.e. information and data that is available on an annual or regular basis); or
- new data and information that was either not available or not obtained for the purposes of the principal, first or second supplementary SoE report.

4.1 LAND

The land supports us and all terrestrial plant and animal life. The importance of the land to society is perhaps most potently expressed by our reliance on the soil as a medium for production of food, fibre and timber.

Soil, biota and water together comprise a dynamic system, changing with what is put into it and what is taken out. The condition of aspects of these three components can often be a good indication of the overall 'health' of the land.

Soil salinity

Soil salinity is a form of land degradation characterised by increasing concentrations of salt in the soil. It is often first noticed as isolated waterlogged areas, patches of dying trees or other vegetation, crop failure, or changes in the types of plants growing in an area.

The proportion of dryland and irrigation salinity is of interest to SoE reporting because it can indicate a significant decline in the health of the land. Land affected by soil salinity during the 2006/07 period can be found in Table 1.

The salinity of shallow groundwater is monitored by MIL every three years and while there has been some variation, there is no discernable trend. Groundwater quality samples were last collected in July 2006. Figure 2 shows the shallow groundwater salinity in 2006. There were 854,216 hectares with groundwater salinity greater than 5,000 EC, compared to 927,200 hectares in 2003, 872,372 hectares in 2000 and 818,212 hectares in 1997. This presents a significant risk of soil salinisation if watertables are not controlled (MIL 2007).

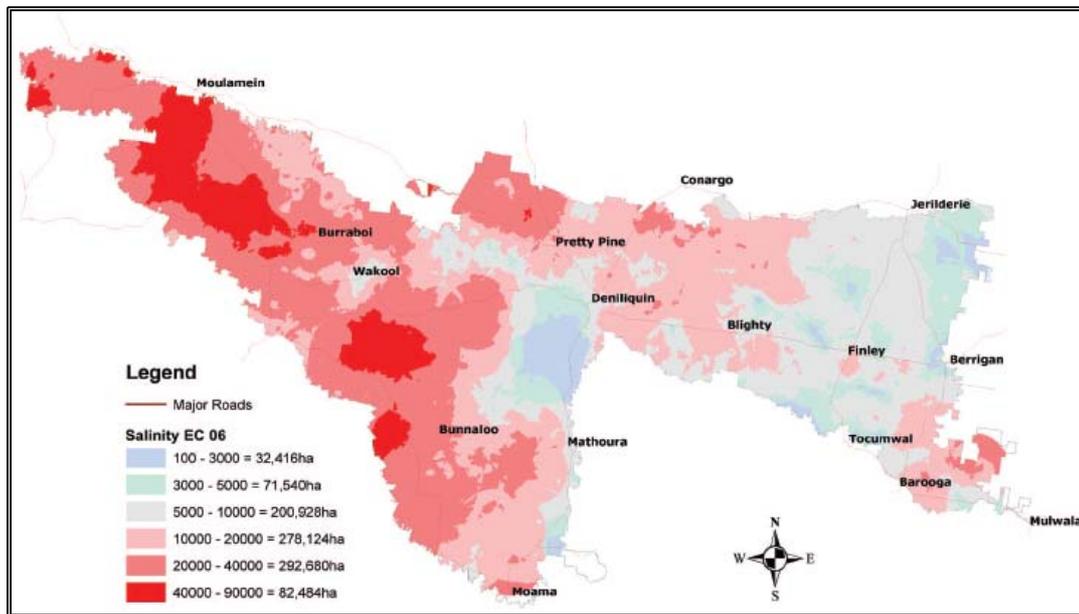
Table 1: LGA's affected by soil salinity

LGA	Land affected by soil salinity during 2006/07	Degree of salinity hazard	Further comment
Balranald	Land affected	Low	No changes or further action from last report.
Berrigan	Land affected	-	MIL and Murray Catchment Management Board currently have salinity measuring sites. Berrigan Shire Council indicated that actions undertaken during 2006/07 to respond to soil salinity have been undertaken by MIL and the Murray Catchment Management Board. This involved the implementation of incentives including improvements to irrigation practices; on-farm water storage; whole farm plans; drainage schemes; recycling systems; and incentives for tree plantings and permanent pasture establishment.
Conargo	Land affected	-	No changes or further action from last report.
Corowa	No new data	-	No changes or further action from last report.
Deniliquin	0.2km ²	Low	No changes or further action from last report.
Greater Hume	Land affected	-	Ten piezometers are located within the Henty Township. Assessment of salinity issues will be addressed in the new Local Environmental Plan (LEP).
Jerilderie	No new data	-	No changes or further action from last report.
Murray	No new data	-	No changes or further action from last report.
Wakool	Land affected	No details	Salinity measuring sites in the Wakool Shire are managed by Murray Irrigation Ltd and the State Water Authority.
Wentworth	Land affected	-	No new data.

(Information sourced from relevant Councils)

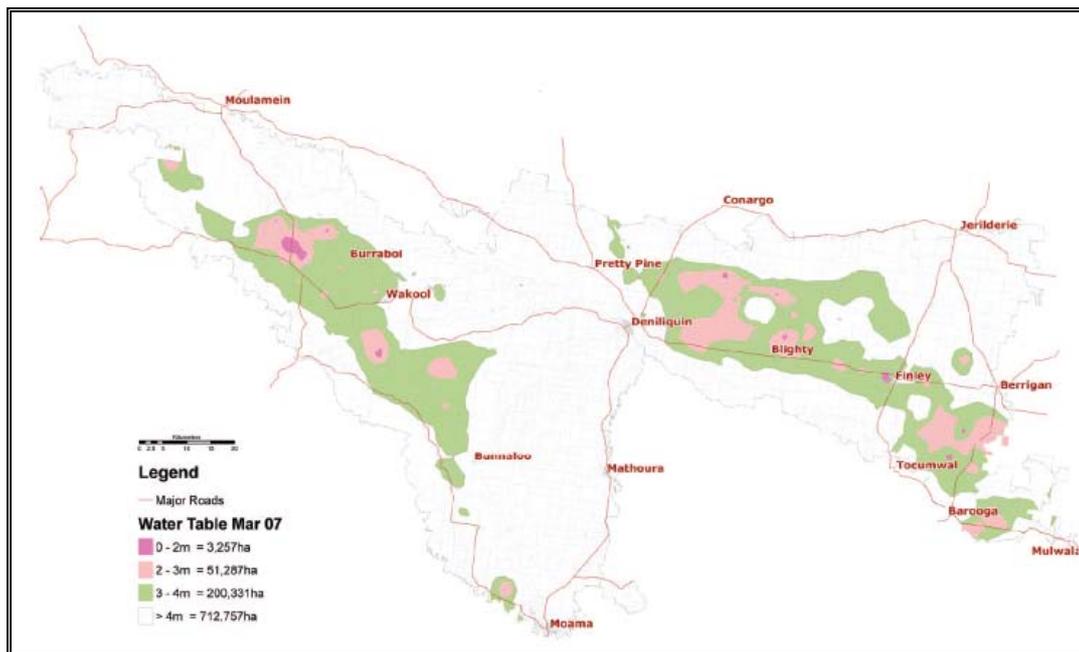
Extensive biannual groundwater monitoring has been undertaken by MIL through a network of 1,500 piezometers which has shown the area affected by shallow watertables in March 2007. A total of 3,257 hectares of land was affected by shallow watertables. This figure increased slightly in August 2007 to 3,747 hectares (see Figure 2). The continuing dry weather sequence and low water allocations have been major factors in the improvement of watertables levels (MIL 2007). Figure 3 shows the depth to watertable area in March 2007 in the MIL region.

Figure 2: Shallow groundwater salinity in the MIL region 2006



(Source: MIL 2007)

Figure 3: Change in depth to watertable area (ha), March 2007



(Source: MIL 2007)

Soil erosion

Soil erosion is the physical loss of soil from an area by wind or water. As for other forms of land degradation, there are generally severe impacts on agricultural productivity, road and building infrastructure and water quality. In general, erosion has occurred as a result of clearing of vegetation on susceptible soils and inappropriate land management practices. Erosion is of interest to SoE reporting because it indicates a significant decline in the health of the land.

Balranald, Greater Hume and Wentworth were the only LGAs to record land affected by sheet and rill erosion during 2006/07. The extent of land affected by erosion was unknown.

It is significant to note that the majority of LGA's within the Murray region actively support their local Landcare Groups. Landcare groups established in each LGA in the 2006/07 reporting period are listed in Table 2.

Table 2: Number of Landcare groups in each LGA

LGA	Landcare Group	Activity
Balranald	Clare Conservation Group	-
Berrigan	No change since last report	-
Conargo	No change since last report	-
Corowa	No change since last report	-
Deniliquin	No change since last report	-
Greater Hume	Alma Park/Pleasant Hills Landcare Group Holbrook Landcare Group Mullengandra Landcare Group Rand, Walbundrie, Billabong Creek Landcare Group Culcairn Landcare Group Carabost Landcare Group Bowna Arm Landcare Group Fowlers/Wagra Creek Landcare Group West Hume Landcare Group	-
Jerilderie	No change since last report	-
Murray	No change since last report	-
Wakool	Western Murray Land Improvement Group Environmental Champions Barham Landcare Group Murrakool Land for Wildlife	-
Wentworth	Darling Junction Landcare Group	-

(Information sourced from relevant Councils)

Land contamination

Land is contaminated when the level of a hazardous substance is greater than that which would naturally occur at the same site. Hazardous substances potentially pose an immediate or long-term risk to the health of humans or the environment.

The location and extent of an area contaminated by identified contaminants is of concern to SoE reporting because it is an indicator of the threat by land contamination to soil and aquatic organisms, vertebrates that might be feeding on contaminated organisms, and ultimately on human health.

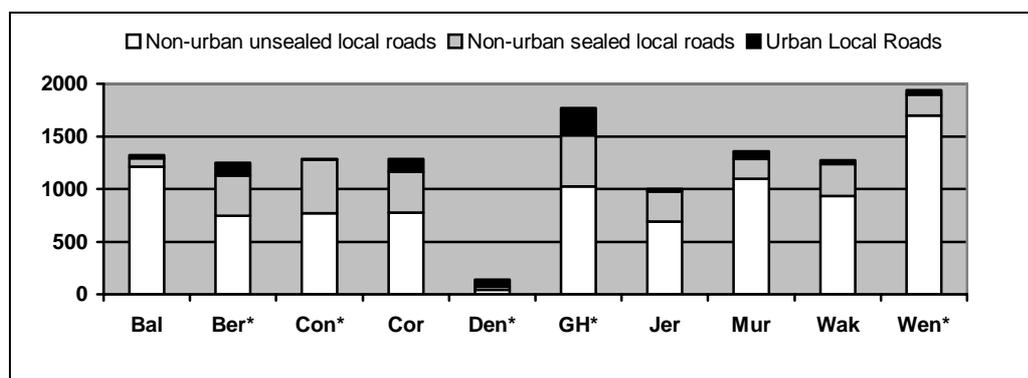
The 10 LGAs within the study area all reported that no change had been recorded during 2006/07 with regard to land contamination within their jurisdiction.

Balranald, Corowa, Deniliquin and Wentworth Shire Councils indicated that they currently maintain a Contaminated Lands Register during the 2006/07 reporting period. No additions were added to the Register.

Road construction & use

There is approximately 12,500 kilometres of local roads within the LGA's participating in this SoE report. Six (6) percent are classified as urban local roads, 22 percent as non-urban sealed roads and 72 percent as non-urban unsealed roads. The breakdown of these roads for each LGA is shown in Figure 4. Generally the larger the area of an LGA, the greater the length of roads within it. Compared to other LGA's in the region, Deniliquin has a short length of local road because the municipality does not extend far beyond the urban area of the city. Wentworth has the greatest length of unsealed local roads, Conargo has the most rural sealed road and Greater Hume the most urban sealed road. With 10 towns and villages within its boundaries, it is not unexpected that Greater Hume would reflect this statistic. Road length and conditions for the 2005/06² reporting period is illustrated in Figure 4.

Figure 4: Road length 2005/06 - kilometres



(Source: Department of Local Government 2006) Note: * indicates no change since last report

The following table (Table 3) provides data of only those changes that have occurred to Council maintained and managed roads during 2006/07.

Table 3: Changes to roads within specified LGAs

LGA	New Roads Created	Ongoing maintenance	Other changes impacting traffic/road use
Balranald	4 kms of local sealed rural road.	-	-
Berrigan	1.2 kms of local sealed rural roads. 1.37 kms local sealed urban roads. 3.64 kms local gravel rural roads.	-	-
Conargo	-	-	-
Corowa	0.6 kms of local sealed urban road. Hume Bridge construction.	-	Reconstruction of Hume Street. Daysdale curves alignment.

² Released 2006/07

LGA	New Roads Created	Ongoing maintenance	Other changes impacting traffic/road use
Deniliquin	0.25 kms of local sealed rural roads. 0.1 kms of local sealed urban roads.	-	Reconstruction of kerb, gutter and sealed shoulder on Finley Rd. Upgrade pavement and install kerb and guttering of Ross St. Regravel numerous unsealed urban and rural roads such as Hetherington St, Old Racecourse Rd, Lawson Syphon Rd, Yarra St, Augustus St, Box St, Robinson St, Larcome Ln and Ochtertyre St.
Greater Hume	-	-	-
Jerilderie	3 kms of local gravel rural roads.	-	Reconstruct 3 kms of McDonald Road. Shoulder widening on RR323 Oaklands Rd for 6 kms. Heavy patching works on MR 321 Kidman Way.
Murray	2.852 kms of local sealed rural roads. 933 kms of local sealed urban roads. -2.3 kms of local gravel rural roads. -380 kms of local gravel urban roads. Moama Business Park road construction. Roads constructed in Glenferrie Estate.	-	Upgrade of Conargo St, Mathoura. Upgrade of Picnic Point Rd. Upgrade of Caldwell Line Rd. Increased traffic use along Perricoota Rd and Cobb Hwy.
Wakool	1.5 kms of local sealed rural roads. 2 kms of local sealed urban roads.	-	-
Wentworth	-	-	Low Darling Rd gravel resheet for 2 kms. Rufus River Rd gravel resheet for 5 kms. Fletchers Lake Rd shoulder widening for 3 kms. Tapaulin Mail Rd gravel resheet for 5 kms.

(Information sourced from relevant Councils)

The RTA has compiled results of a traffic survey³ undertaken during 2003 in RTA South Western Region as part of a three year repeating cycle covering the whole of NSW. No updates on traffic counts for each LGA have been undertaken and/or published since this survey was produced. The next traffic survey is due 2006 and was not publicly available at the time of writing.

³ Source: Traffic Volume Data for South Western Region 2003, RTA.
http://www.rta.nsw.gov.au/trafficinformation/downloads/aadt_data_files/aadtsouthwest2003_i.pdf

Building, subdivision & major development

The future quality of communities is dependent upon on the condition and extent of infrastructure systems. To effectively manage public infrastructure assets it is necessary to develop long-term management plans that incorporate the true cost of developing, maintaining and upgrading infrastructure systems, as well as projecting likely future demand and other factors. It also includes planning for risk, to minimise the likelihood of failure. Inadequate planning can present significant problems for future generations.

BASIX (the building sustainability index) as a new planning requirement that applies to the building of new dwellings, has since been introduced across NSW to improve the energy and water efficiencies in homes. From 1st July 2005 a BASIX certificate is required for a new home, (including new multi unit residential developments) anywhere in NSW. BASIX calls for the reduction in water consumption, a reduction in energy consumption and a pass in the 'thermal comfort' section. All new development application for new dwellings and unit development within all the councils therefore had to be accompanied by a BASIX certificate, which indicate if the subject dwelling was designed in a manner to reduce the water and energy consumption as is required.

LGA comments regarding the implementation of the BASIX system are listed below.

- Balranald Shire Council has experienced a positive attitude towards the raw river water augmentation in both urban areas. This has been a credit towards garden water usage.
- Berrigan Shire Council has concern over enforcing the limitations on landscaping specified on the BASIX certificate after the house has been occupied, and why BASIX does not apply to relocatable and transportable dwellings.
- BASIX is becoming more accepted in the Conargo Shire and the benefits of energy efficient housing are being recognised by home owners.
- Corowa Shire Council has indicated that BASIX is like a pretend system. Amended certificates are too easily changed and issued.
- Deniliquin Shire Council has indicated that BASIX is generally accepted by the development community with some compliance issues still being experienced.
- BASIX has had no major impact on the Jerilderie Shire with only three dwellings completed during the reporting period. No alterations and additions within the Shire were affected by BASIX.
- Wakool has indicated that BASIX needs drastic revision to make it simpler and more equitable. The system has a very significant financial impact on persons undertaking BASIX which is affecting their building works; has a very poor intercommunication between the BASIX team and Council; and is impractical when enforcing owner commitments in many cases.
- Greater Hume, Murray and Wentworth Shires had no comment.

Table 4 details the number of subdivisions approved by each Council during 2006/07, the number of new lots created by the approved subdivisions and the number of new dwellings approved.

Table 4: Number of subdivisions, new lots and new dwellings approved in 2006/07

LGA	Subdivisions approved 2006/07	Number of new lots created	New dwellings approved 2006/07
Balranald	18	108	10
Berrigan	23	117	74
Conargo	2	4	7
Corowa	11	154	77
Deniliquin	17	62	9
Greater Hume	39	86	47
Jerilderie	1	2	4
Murray	36	192	103
Wakool	21	43	10
Wentworth	21	68	46

(Information sourced from relevant Councils)

Greater development activity occurs in townships along the Murray River such as Howlong, Corowa, Mulwala, Barooga, Tocumwal and Moama than further to the north. This growth might also be the result of the increased employment opportunities in towns across the river in the Victorian towns which in turn stimulate growth in the 'border' towns in NSW. Also greater development activity tends to occur in the eastern part of the region possibly because of the proximity to Albury-Wodonga and shorter distance to Melbourne. A total of three Councils approved a designated development in the 2006/07 reporting period (see Table 5).

Table 5: Designated development approved during 2006/07

LGA	Development	Other information
Murray	Marina	Moama Waters Pty. Ltd.
Jerilderie	Berrigan Stormwater Escape Channel	Murray Irrigation Limited
Conargo	30,000 head sheep feedlot	-

(Information sourced from relevant Councils)

Public open space

Land in towns is used for residential, commercial and industrial uses as well as urban green space. The amount of land used for each affects the nature and extent of impacts of urbanisation on the environment and the demands for infrastructure such as energy and water supply systems. The way land is used in urban areas also impacts on the quality of life for residents as it affects the amount of privacy, space and noise experienced by the residential population, resulting in a range of effects on human health.

The area of urban green space should be further disaggregated into the area of urban land devoted to native vegetation, parks, gardens, recreation and other open spaces,

relative to the total urban area and whether this green space is accessible to the public. This is because urban green space that is not easily accessible for all does not contribute as much to the overall quality of life for an urban population.

No changes to the public open space controlled by the LGA's within the study region were reported for 2006/07.

4.2 ATMOSPHERE

The atmosphere is no respecter of human boundaries and any division of it into jurisdictional regions is artificial and unhelpful. The air in the region forms part of the great global movements of air that drive the climate system and re-distribute heat around the planet - in the process moving pollutants too. Clearly areas are subjected to deteriorations in the state of the atmosphere caused by actions elsewhere and this must be borne in mind when reading any material in this theme.

In this theme, we report on the condition of the atmosphere in the region including rainfall and temperature statistics.

Also of importance to human health, although little monitored, is the quality of air inside buildings.

Pollution complaints

The data available on the Department of Environment and Climate Change (DECC) website has not been updated since the principal SoE report and consequently there is no data to present in addition to that in the principal SoE report.

Table 6 provides some data supplied by each LGA from their own complaints records.

Table 6: Pollution complaints received during 2006/07

LGA	Complaints Register?	Number of Complaints 2006/07	Details/nature of complaint
Balranald	Yes	1	A reported fish kill on Lake Benanee which resulted in confirmation that the event was due to extreme hot weather and drought conditions.
Berrigan	Yes	11	Drums/chemical smell Sewer system odour Backyard burning Juice factory effluent odour
Conargo	No	0	-
Corowa	No	3	Dust
Deniliquin	Yes	9	x5 odour emitting from sewer treatment plant x4 noise related matters
Greater Hume	Yes	5	-
Jerilderie	Yes	0	-
Murray	Yes	10	Most pollution complaints were regarding rubbish/litter.

Wakool	Yes	2	Building waste from a demolition site in neighbouring Shire dumped on floodplain. Air pollution from a feedlot.
Wentworth	Yes	16	x3 air x1 chemical x1 noise x3 pesticide x8 water

(Information sourced from relevant Councils)

Motor vehicle use

Whilst providing an important means of transport, motor vehicles are a source of air pollution and are therefore relevant to SoE reporting. Table 7 below provides information of the kilometres travelled by Council owned vehicles within each LGA as well as the volume of fuel consumed.

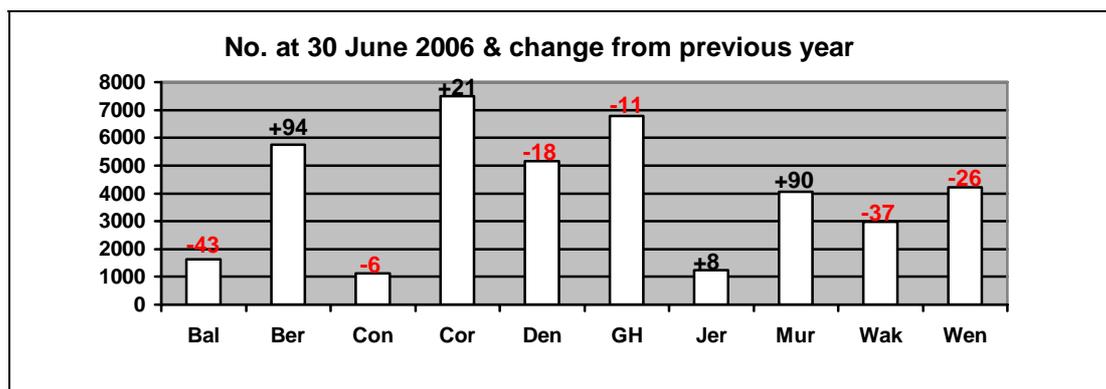
Table 7: Kilometres travelled & fuel consumed by Council vehicles in 2006/07

LGA	Kilometres travelled by Council vehicles during 2006/07	Litres of fuel used by Council vehicles during 2006/07
Balranald	500,000	60,000
Berrigan	-	-
Conargo	610,000	400,000
Corowa	-	69,700 ULP 252,000 distillate
Deniliquin	1,200,000	250,000
Greater Hume	2,500,000	511,000
Jerilderie	-	330,000
Murray	1,750,000	550,000
Wakool	-	278,539
Wentworth	472,493	348,527

(Information sourced from relevant Councils)

Figure 5 and Figure 6 presents the data available from the RTA in regards to vehicles and drivers in 2006. Figure 5 shows the number of licensed drivers in each LGA and reveals that most LGA's experienced a small decrease.

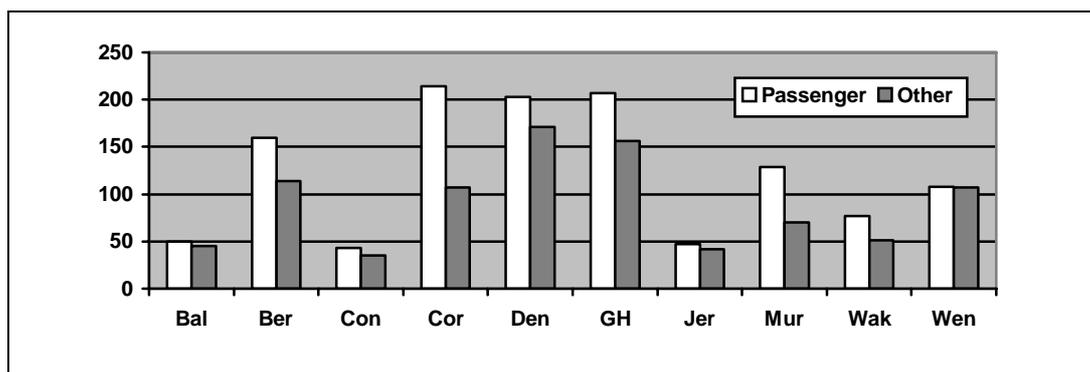
Figure 5: Licensed drivers 2006



(Source: RTA 2006)

Figure 6 shows the number of new vehicles registered in each LGA in 2006. Corowa had by far the most new passenger vehicle registrations with Greater Hume and Deniliquin all around the 200 mark. Deniliquin experienced the most non-passenger vehicle registrations.

Figure 6: New vehicles registered 2006



(Source: RTA 2006)

Temperature

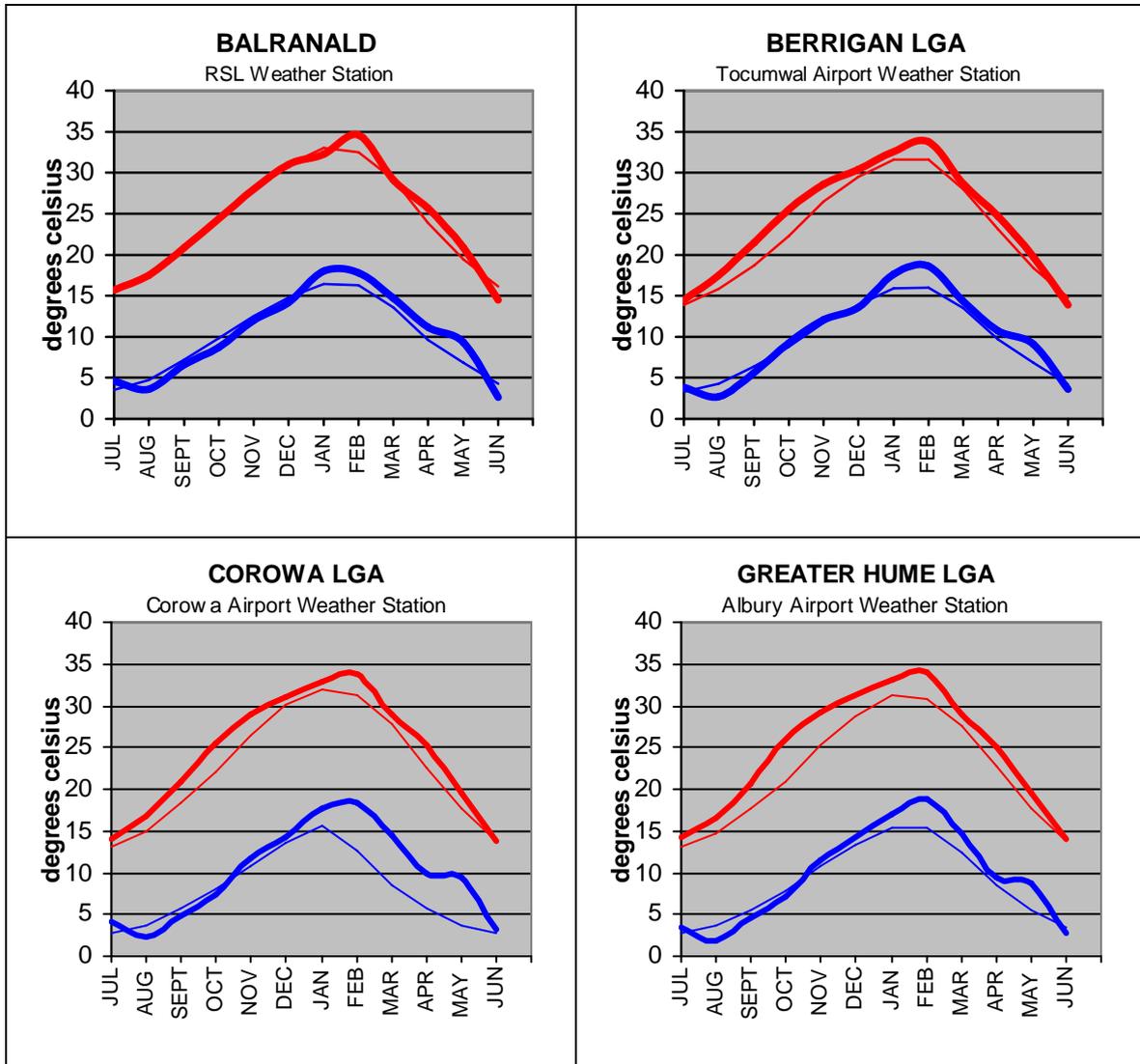
Temperature, along with rainfall, is one of the main factors that influence the nature and species composition of ecosystems, as well as the types of agricultural activities that can be carried out in the region. It is the temperature extremes that are of most interest, as longer-term averages are slow to change in response to climate changes, both natural and human induced such as the enhanced so-called 'greenhouse' effect. For example, many crops are vulnerable to an unseasonably late frost, or an extremely hot day at specific stages in crop growth.

Temperature also affects human comfort and this is reflected in energy usage, as many dwellings and places of work require some heating in the coldest winter months, and/or cooling in the hottest summer months.

Figure 7 charts the mean minimum and monthly temperatures experienced across the region in 2006/07 compared to the historical average. The charts show that across the region the spring of 2006 was slightly cooler than average, the summer hotter than

average (significantly hotter in January and February), and the autumn and winter of 2007 being cooler than average.

Figure 7: Mean minimum and maximum monthly temperature – 2006/07 vs historical



Note: The red lines refer to the mean maximum temperature and the blue lines refer to the mean minimum. The thicker line represents the 2006/07 data and the thinner line the historical record for each month. (Source: BOM 2007)

Smoke

The amount of particles in our atmosphere can result in a loss of visibility because of haze, as well as increases in the number of people affected by respiratory problems like asthma and bronchitis. This is the reason for including air borne particles as an indicator in the SoE report.

Within the study area the two primary sources of smoke are, firstly, stubble burning of agricultural paddocks that have generally been sown with cereal crops and secondly, during the winter months where the use of solid fuel heaters contributes to the particulate count. Table 8 below displays the data received from the LGAs.

Table 8: Permits and approvals for each LGA for stubble burning and solid fuel heaters during 2006/07

LGA	Number of permits for stubble burning 2006/07 during restricted periods	Number of permits for solid fuel heaters 2006/07
Balarald	0	0
Berrigan	0	1
Conargo	0	1
Corowa	0	6
Deniliquin	0	0
Greater Hume	0	3
Jerilderie	0	0
Murray	0	0
Wakool	37	3
Wentworth	118 Agricultural permits	2

(Information sourced from relevant Councils)

Environment Protection Licences

Environment Protection Licences are issued by the DECC for scheduled premises. Table 9 lists all licences currently in place across the LGA's included in this SoE report. A total of four new licences were either issued or appending. New licences issued in the reporting period are highlighted.

Table 9: DECC issued Environment Protection Licences for Scheduled Premises

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
BALRANALD				
Balranald Gypsum Pty	White Plains Gypsum Ivanhoe Road Balranald	Mining (Other than Coal)		
Balranald Gypsum Pty Ltd	Paxtons Mine Lease Ivanhoe Road Hatfield	Mining (Other than Coal)		
Balranald Gypsum Pty Ltd	Norm's Mine Ivanhoe Road Hatfield	Mining (Other than Coal)	S 58 Licence Variation 19/01/07 S 58 Licence Variation 24 Jan 07	
Balranald Shire Council	Balranald Water Treatment Works 36 Court Street Balranald	Misc Licensed Discharge to Waters (any)	S 58 Licence Surrender 27/7/07 S 80 Surrender Licence 8/8/07	
BERRIGAN				
Berrigan Shire Council	Finley Sewage Treatment Plant Dales Road, Finley	Sewage Treatment - small plants	S 58 Licence Variation 15/10/07	-
Collins; David Eric George, D & M Collins	"Claremont", Cruikshanks Road, Berrigan	Pig Production		
Equity Park Enterprises Pty. Ltd	Equity Park Enterprises Pty Ltd, Piney Road, Berrigan	Pig Production		
Kydd, N. J. & I. R. Pty Ltd	Hornemans Road, Finley	Milking Facilities		
McGrath, M.W. & M. L. Pty. Ltd	"Lynton", RMB 1620 Langunyah Road, Tocumwal	Pig Production		
McPherson; Allan S J ASJ McPherson & Co McPherson; Geoffrey ASJ McPherson & Co McPherson; Valda M ASJ McPherson & Co	"Avalon Park" RMB 1630 Langunyah Road Tocumwal	Pig Production		

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Mossgiel Nominees Pty Ltd	Ruwolts Road, Mulwala	Milking Facilities		
Perryman's Knackery Pty Ltd	Perryman's Knackery Mardinora Road Tocumwal	Other Livestock Processing		
Ricegrowers' Co-Operative Limited	Rice Marketing Board Finley Storage Facility Rice Mill Road Finley	Other Agricultural Crop Processing (3)		
CONARGO				
Aldebaran Pastoral Co Pty Ltd	"Lynbrae" Monimail Road, Deniliquin	Feedlot Production	New licence issued 7/3/07	
Ricegrowers' Co-Operative Limited	Blighty Rice Storage Sheds Riverina Highway Blighty	Other Agricultural Crop Processing (3)		
COROWA				
ADI Limited	ADI Limited Bayly Street Mulwala	Chemical Storage - Other Chemical Storage Explosive or Pyrotechnics Production Hazardous, Industrial or Group A Waste P Other Chemical Processing	Licence variation approved 30/8/05.	Monitoring Point (MP) 4: NOx & SO3 exceeded limit MP30: NOx exceeded limit MP2: NOx (2), TSS (4), Total Nitrogen (7), Conductivity (2), Oil & Grease, BOD exceeded limit (No. of Incidents = 1) MP 14, 29, 36 & 37 - air emissions monitoring not conducted during licence period. (No of incidents = 4)
Baird; Heidi J. & Baird; Innes	Hopefield Piggery Hopefield Road Corowa	Pig Production		
Boral Resources (Vic) Pty Limited	Corowa Sand & Gravel Riverina Highway Howlong	Other Land-Based Extraction		
Corowa Shire Council	Mulwala Sewage Treatment Works Bayly Street Mulwala	Sewage Treatment - small plants	Licence variation approved 15/10/07. Licence variation approved 1/8/06.	BOD - plant overloaded - constructing new plant (No. of incidents = 9) nitrogen - plant overloaded - constructing new plant (No of incidents = 1) suspended solids total - plant overloaded - constructing new plant (No of incidents = 8) Point 3, A minimum of 0.5mg/L chlorine (No of incidents = 1)
Corowa Shire Council	Mulwala Filtration Plant Gulai Road Mulwala	Misc Licensed Discharge to Waters (any)		

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Corowa Shire Council	Corowa Sewage Treatment Works 27 Nixon Street Corowa	Sewage Treatment - small plants	Licence variation approved 15/10/07. Licence variation approved 1/8/06	Volume/day. (No of incidents = 9)
Corowa Shire Council	Corowa Garbage Depot Albury Road Corowa	Environmentally Sensitive or Inappropriate Land filling	Licence variation approved 4/9/07. Licence variation approved 13/8/07.	
Corowa Shire Council	Corowa Saleyards 449-471 Honour Avenue Corowa	Saleyards		
Hanson Construction Materials Pty Ltd	Pioneer Construction Materials Pty Ltd Posiedon Road Corowa	Concrete Batching		
Hughes, Adrian Kevin	Lot 2 Almond Lane Corowa	Composting and Related Reprocessing		
ICM Farm Products Australia Pty Ltd	Kunanadgee Station Spring Drive Corowa	Milking Facilities		
Melban Pty Limited Cool - Off	Melban Pty Ltd Jude Road Howlong	Other Livestock Processing		
Mills; Donald James Rosedale Nominees Pty Ltd Mills; John Rosedale Nominees Pty Ltd	"Kardinia" Balldale Coreen Road Corowa	Pig Production		
Mooroola Pty Ltd	Mooroola Pty Ltd "Wangamong" Oaklands	Pig Production		
Nagle; Rodney David I & R Nagle	I & R Nagle "Wongalea" Berrigan Roadside Corowa	Pig Production		
QAF Feeds Pty Ltd	QAF Feeds Pty Ltd Albury Road Corowa	Other Agricultural Crop Processing (3)	Licence variation approved 29/8/07.	
QAF Meat Industries Pty Ltd	QAF Meat Industries Pty Ltd Redlands Road Corowa	Animal Slaughtering Pig Production	Licence variation approved 26/3/07.	
Ridley Agriproducts Pty Ltd	Ridley Agriproducts Whitehead Street Corowa	Other Agricultural Crop Processing (3)		

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
DENILIQUIN				
Deniliquin Council	Deniliquin Sewage Treatment System Calimo Street Deniliqui	Sewage Treatment - small plants	Licence variation approved 11/10/07. Licence variation approved 31/7/07.	Faecal coliforms exceeded once and Nitrogen exceeded once for the 100 percentile concentration limit. (No. of incidents = 1).
Deniliquin Council	Deniliquin Waste Disposal Depot Hay Road Deniliquin	Solid Waste Land filling		Analysis of monitoring data - Second six monthly sample results had not been received at time of doing Annual Report. This prevented finalisation of annual monitoring report. (No of incidents = 1) Quarterly reporting of Waste Received Form not submitted for previous 12 months.(No of incidents = 1)
Deniliquin Council	Deniliquin Saleyards Saleyards Road Deniliquin	Saleyards		
Famicorp Pty Ltd	Famicorp Pty Ltd Abattoir Road Deniliquin	Animal Slaughtering	Licence variation approved 18/10/07.	
Four Seas (NSW) Limited	Charlie Carp Fertiliser Lot 2 Saleyards Road Deniliquin	Rendering or Fat Extraction		
Greater Murray Area Health Service	Deniliquin Hospital 40 Charlotte Street Deniliquin	Hazardous, Industrial or Group A Waste G		
Murray Irrigation Limited	Murray Irrigation Area of operations within Shires of Wakool, Windouran, Corowa, Berrigan, Jerilderie, Conargo, Murray & Deniliquin	Irrigated Agriculture		
Ricegrowers' Co-Operative Limited	Deniliquin Rice Mill Sale Yards Road Deniliquin	Other Agricultural Crop Processing (3)		
GREATER HUME				
Albury Galvanizing Pty Ltd	Albury Galvanizing Pty Ltd Lot 9 Davis Drive Jindera	Hazardous, Industrial or Group A Waste G	Licence variation approved 27/4/06.	
Bald Hill Quarry Pty Ltd	"Cromer" Hume Highway, Holbrook	Hard-Rock Gravel Quarrying	New licence approved 25/10/07.	
Barwondale Feedlot Pty Ltd	Cookardinia Road, Henty	Feedlot Production		Parameter 4 Sigma theta (No of incidents =1)

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Boral Bricks Pty Ltd	Boral Bricks Pty Ltd Hueske Road Jindera	Ceramics Production Crushing/Grinding/Separating Other Land-Based Extraction		
Boral Resources (Vic) Pty Limited	Weeamera Road Culcairn	Hard-Rock Gravel Quarrying		
Greater Hume Shire Council	Comer Street Henty	Sewage Treatment - small plants	Licence variation approved 16/10/07 Licence variation approved 31/7/06	
Greater Hume Shire Council	Cemetery Road Culcairn	Sewage Treatment - small plants	Licence variation approved 16/10/07 Licence variation approved 31/7/06	
Greater Hume Shire Council	Klemke Avenue Walla Walla	Sewage Treatment - small plants	Licence variation approved 16/10/07 Licence variation approved 31/7/06	
Greater Hume Shire Council	Bath Street Holbrook	Sewage Treatment - small plants	Licence variation approved 16/10/07 Licence variation approved 31/7/06	ADP004 effluent quality monitoring discharge point - Suspended Solids readings recorded 52mg/L on 20/12/07. (No. of incidents = 1).
Hyne & Son Pty Limited	21 Bond Street Holbrook	Wood or Timber Milling	Licence variation approved 7/5/07	Water quality monitoring not undertaken. revision of requirements for pollutant monitoring, frequency and sampling method agreed in principle from the DEC. revised licese to be provided by the DEC. (No. of incidents = 4).
Geelong Leather Pty Ltd	116 Schnaars Road Culcairn	Tanning or Fellmongery		Monitoring not undertaken as required by Condition M2. (No. of incidents = 1).
Leighton Contractors Pty Ltd	Yarra Yarra Road N4 Batching Plant, Intersection Hume Hwy & Yarra Yarra Road, Little Billabong	Concrete Batching	New licence approved 1/10/07.	

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
QAF Meat Industries Pty Ltd	Bungowannah Piggery Riverina Highway Bungowannah	Composting and Related Reprocessing Pig Production		
Regmont Pty. Limited	Back Henty Road Culcairn	Feedlot Production		Chemical analysis of runoff and flows during the reporting period not undertaken, as no run off and insufficient flow (No. of incidents = 1) Quantity of solid waste applied not monitored during the reporting period, as no manure was applied (No. of incidents = 1).
Wyanga Holdings Pty Ltd	Hume Highway, Table Top	Hard-Rock Gravel Quarrying	New licence approved 18/5/07.	
JERILDERIE				
Jerilderie Shire Council	Jerilderie Sewage Treatment Works Wilson Road Jerilderie	Sewage Treatment - small plants	Licence variation approved 16/10/07 Licence variation approved 31/7/06	
Ricegrowers' Co-Operative Limited	Hogan Rice Storage Sheds Cnr Newell Highway & Berrigan Road Jerilderie	Other Agricultural Crop Processing (3)		
MURRAY				
Associated Feedlots Pty. Ltd.	Amaroo Park Sollys Road Mathoura	Feedlot Production		
Boral Resources (Vic.) Pty. Limited	Boral Resources (Vic) Pty Limited 8 Eddy Avenue Moama	Concrete Batching		
Bunnaloo Pastoral Company Pty Ltd	"Lenian" Nolan Road Bunnaloo	Feedlot Production	Licence variation approved 24/7/07 Licence variation approved 10/8/06	
Camboon Pty Ltd	Ballyrogan Road, Bunnaloo	Pig Production		
Closter's Group Pty Ltd	Moama Wastewater Treatment Works Hillside Road Moama	Hazardous, Industrial or Group A Waste P		
Deep Creek Marina Pty Ltd	Deep Creek Marina Perricoota Road Moama	Other Vessel Construction/Maintenance		

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Kempen; Sheila G & S Kempen	"Birchfield" Fitzpatrick Lane Womboota	Pig Production		
Future Fuels Australia Pty Ltd	Moama Refinery Hillside Lane Moama	Petroleum Refining	S 91 Clean up notice issued 24/9/07 S 91 Clean up notice issued 5/9/07 Licence variation approved 24/7/07 Licence variation approved 10/8/06	
Murray Shire Council	Moama Solid Waste Depot Centre Road, Moama Moama	Solid Waste Land filling		
Murray Shire Council	Moama Sewage Treatment Plant Hillside Road Moama	Sewage Treatment - small plants	Licence variation approved 6/11/07 Licence variation approved 31/7/06	
Ricegrowers' Co- Operative Limited	Caldwell Rice Storage Sheds Rosella Street Caldwell	Other Agricultural Crop Processing (3)		
Ritchie; Richard Michael	Drums Go Round 6 Eddy Avenue Moama	Drum or Container Reconditioning Hazardous, Industrial or Group A Waste P		
Symons; Robert Wesley	Old Moama Slipway 1 Forbes Street Moama	Other Vessel Construction/Maintenance		
WAKOOL				
Council of the Shire of Wakool	Murray Downs Sewage Treatment System, Lot 11 DP836391, Murray Downs	Sewage Treatment - small plants	S 80 Surrender Licence 27/7/07 Licence variation approved 31/7/06.	

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Garrison Cattle Feeders Pty Ltd	'Garrison' Moulamein Road Murray Downs	Feedlot Production		Closing month stock numbers exceeded the limit of 5,000 head on two separate occasions. (No. of incidents = 1). Chemical analysis of representative groundwater sample monitoring not carried out at MP 1. (No. of incidents = 1).
QAF Meat Industries Pty Ltd	Brooksbank Properties Pty Ltd "Balpool Station" Via Moulamein	Composting and Related Reprocessing Other Agricultural Crop Processing (3) Pig Production		
Ricegrowers' Co-Operative Limited	Burraboi Rice Storage Sheds Wakool Road Burraboi	Other Agricultural Crop Processing (3)		
Ricegrowers' Co-Operative Limited	Moulamein Rice Storage Sheds Corner of Hay & Tchelery Roads Moulamein	Other Agricultural Crop Processing (3)		
Tasman Group Services Pty. Ltd.	Yambinya Station Jimaringle Road Burraboi	Feedlot Production	S 58 Licence variation approved 23/3/06.	Causing the generation of unacceptable quantities of dust. (No. of incidents = 1).
WENTWORTH				
Bemax Resources NL	Snapper Mine NOB Road , Pooncarie	Land-Based Extraction	Application pending 19/10/07	
Arumpo Bentonite Pty Limited	On Arumpo Station Wentworth	Mining (Other than Coal)		
Bemax Resources NL	Ginkgo Mineral Sands Project , Nob Road Wentworth	Land-Based Extraction - Other Mining (Other than Coal) Non-Ferrous Production (excluding Aluminium) - Secondary Waste Generation or Storage - Hazardous, Industrial or Group A	S 58 Licence variation approved 12/10/06.	Monitoring Point 8 - Monthly monitoring of standing water level and TDS required. Monitoring of TDS not able to be undertaken due to inability to collect sample from bore. (No. of incidents = 4).
Hardy Wine Company Limited	Silvercity Highway Mourquong	Wine or Spirit Processing	S 58 Licence variation approved 2/8/06.	
Ilinga Pty Ltd	30 River Drive Buronga	Other Vessel Construction/Maintenance		

LICENCE HOLDER	PREMISES	ACTIVITY	CHANGE FROM 2005/06	NON-COMPLIANCE 2006/07
Larmon Pty. Ltd	Arumpo Road Mourquong	Mining (Other than Coal)		
Mawson E.B. & Sons Pty Ltd	Cnr Silver City Highway & Corbett Avenue Buronga	Concrete Batching	S 58 Licence variation pending 27/7/07.	
Simeon Wines Limited	1031 Silver City Highway Buronga	Wine or Spirit Processing		Exceed conductivity quality limit. (No. of incidents = 1). Monitoring Point 6 - there were at times peaks of high and low pH flows recorded. (No. of incidents = 1). Monitoring Point 7 - Waste acid volume monitoring was not recorded. (No. of incidents = 1). Report on monitoring results not submitted. (No. of incidents = 1).
Wentworth Shire Council	Kookaburra Drive Dareton	Sewage Treatment - small plants	S 58 Licence variation pending 7/8/07.	
Wentworth Shire Council	Alcheringa Drive Gol Gol	Sewage Treatment - small plants	S 58 Licence variation pending 7/8/07.	
Wentworth Shire Council	Pooncarie Road Wentworth	Sewage Treatment - small plants	S 58 Licence variation pending 7/8/07.	
Wentworth Shire Council	Lagoon Road Off Cadell Street Wentworth	Sewage Treatment - small plants	S 58 Licence variation pending 7/8/07.	
Western Murray Irrigation Ltd	- Dareton 4659	Irrigated Agriculture		

(Source: DECC 2007a)

4.3 WATER

It is a generally accepted common goal that water should support healthy communities of plants and animals, as well as meeting the direct requirements of humans in production of harvested plants and animals, in recreational activities such as swimming, fishing, and in the provision of aesthetic surroundings.

Within the region, various types of water resources are to be found including major rivers within the Murray-Darling Basin such as the Murray, Murrumbidgee and Darling, man-made lakes and reservoirs of a wide range of sizes, groundwater systems, and areas which cross between land and water, the wetlands.

In fresh water systems humans are now realising the significance of biological flow as a constraint to amount of water that can be withdrawn from river systems for irrigation or for industrial or community purposes. Given that it is estimated that 81% of the available divertible waters of the Murray-Darling Basin are already utilised for human purposes, it is anticipated that water management factors will be a particularly significant component of natural resources management and sustainable development.

There is often a perception of the quality of water and the ecosystem that does not accord with the natural variability of these systems. Recreational amenity of lakes and streams is measured in terms of their water clarity, freedom from visible turbidity and scums, and visible evidence of aquatic life. Similarly, the quality of a water supply is judged in terms of its reliability and aesthetics.

However, for Australian inland streams, the stream flow and associated water quality naturally vary. Conditions may swing from low flows to floods. Native organisms have not only adapted to this variability, they may even require it.

Until recently, there has been a European-based approach to managing water resources in a manner consistent with maintaining urban amenity and agricultural productivity. The substantial exploitation of available water supplies has meant the end of the old approach of simply building more dams to sustain the water supply. In its place, a demand management and risk-based management approach is now emerging.

There has also been an attitude of preservation that fails to recognise natural change. For example, some wetlands are lakes in transition to terrestrial plains; or, occasionally, fauna may be severely stressed by natural events - but this may be helpful in an evolutionary sense. In the same vein, the occasional incidence of algal blooms is a natural phenomenon. Of course, changes in land use and waste discharges have resulted in a substantial increase in both the severity and frequency of algal blooms, and could affect the dominant algal species when blooms do occur.

Rainfall

The Department of Primary Industries (DPI) in NSW releases a new drought map each month. The drought maps are prepared from information provided by the 48 Rural Lands Protection Boards (RLPB) around the state, rainfall details from the Bureau of Meteorology (BoM) and reports from DPI regional staff.

Drought classification of an area takes into account the following factors:

- a review of historic rainfall records for the area
- pasture availability
- climatic events such as frosts
- seasonal factors such as pasture growing seasons.

NSW Government assistance measures require that a RLPB district be in the drought-affected category for six (6) months before landholders are eligible for financial assistance.



The monthly drought status for each of the RLPB districts in the MROC region (see map opposite) for the reporting period is shown in Figure 8. Generally, seasonal conditions are more favourable in the eastern part of the region than the west. However, for the last reporting period the whole of the region was classed as being 'in drought' – while it was only 'in drought' for about half of the previous year.

Figure 8: Seasonal conditions 2006/07

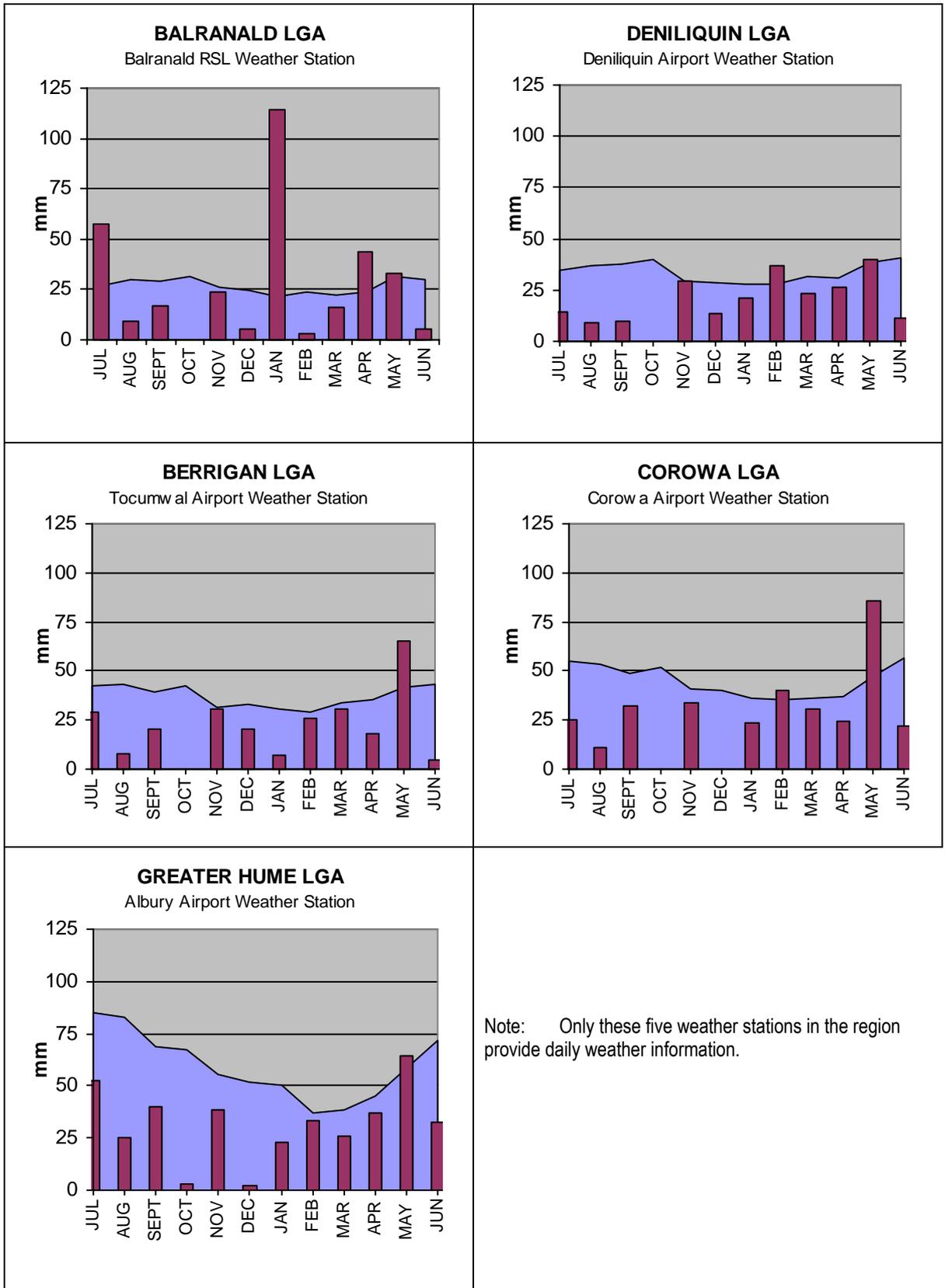
RLPB DISTRICT	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Wentworth	RED											
Balranald	RED											
Riverina	RED											
Murray	RED											
Hume	RED											

RED = In drought ORANGE = Marginal GREEN = Satisfactory

(Source: Department of Primary Industries 2007)

Figure 9 shows most areas across the region experienced average or above rainfall in May and July of 2007 but lower than average for the remainder of the reporting period. This is consistent with the drought status chart at Figure 8. In particular, all regions experienced very dry springs.

Figure 9: Monthly rainfall 2006/07 against the historical average



Note: Only these five weather stations in the region provide daily weather information.

(Source: Bureau of Meteorology 2007)

Water use

Water is taken from streams and groundwater for a large number of purposes such as domestic use, agricultural use and industrial uses.

The amount of water used is of concern to SoE reporting because the impact on stream flow can be significant, placing pressure of aquatic ecosystems and limiting the amount of water available for downstream users. The need to ensure adequate flow for aquatic ecosystems is the reason that environmental flow regulations have been enacted in most jurisdictions.

Total water consumption tends to increase as human population increases. This can require the construction of extra water supply reservoirs to meet the increased demand for water, thus placing further pressure on the natural environment. Where this is not possible, it is necessary to investigate alternative sources of water, reduce per capita consumption of water, or to introduce water restrictions, typically the case in the summer months in some areas.

The following table displays data from the 10 LGA's in the region indicating their approach to the points raised in the previous paragraph.

Table 10: Water consumption & charges

LGA	Water Restrictions Imposed	Excess Water Charges and Calculations	Average Annual Household Water Consumption	Increase In Water Supply
Balranald	Yes Council complied with restrictions placed on the Murray and its tributaries of the greater area.	22 cents/kl for unfiltered water in excess of 200kl and 60 cents/kl for filtered water	900kl	No
Berrigan	No Stage 4 Water Restrictions introduced from 1 st July 2007	No allowance – full user pays system introduced 30/06/2006. Barooga, Berrigan and Finley - Filtered water \$0.90/kl Raw water \$0.45/kl Tocumwal \$0.60/kl	472kl filtered potable =150kl unfiltered garden = 322kl	Yes Finley Tower + 5.4ML Tocumwal Tower + 4ML Berrigan Earth Tank = 48ML
Conargo	No	\$30/100kl after allocation of 700kl in Conargo and 1000kl in Wanganella.	Wanganella 528kl Conargo 419kl	No
Corowa	Yes	No allowance - \$0.55/kl		No
Deniliquin	Yes Stage 1 from 12/3/2007 til 15/7/2007	No	444kl	No

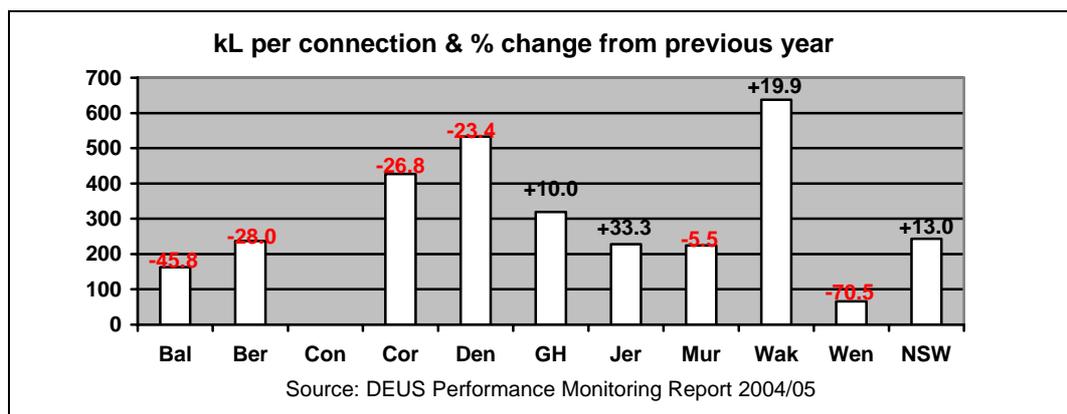
LGA	Water Restrictions Imposed	Excess Water Charges and Calculations	Average Annual Household Water Consumption	Increase In Water Supply
Greater Hume	<p>Yes</p> <p>Stage 2 from July 2006 to June 2007.</p> <p>Stage 4 from July 2007 to October 2007.</p> <p>Stage 3A from November 2007.</p>	<p>Culcairn</p> <p>< 200kl = 60c/kl</p> <p>> 200kl = 80c/kl</p> <p>Villages</p> <p>< 200kl = \$1/kl</p> <p>> 200kl = \$1.30/kl</p>		No
Jerilderie	<p>Yes</p> <p>Stage 1 & Stage 2 restrictions</p> <p>Stage 1– limiting outside watering to 6hrs per day</p> <p>Stage 2 limiting outside watering to 4hrs per day</p>	<p>No allowance –user pays system introduced.</p> <p>Filtered water</p> <p>0-250kl = \$1.00/kl</p> <p>> 250kl = \$1.50/kl</p> <p>Non-residential = \$1.00/kl</p> <p>Raw water = \$0.45/kl</p>	200kl	No
Murray	<p>Yes</p> <p>Council operated an odds and even system of water restrictions during the 2006/07 year.</p> <p>Watering was restricted between 10am and 5pm</p>		350kl	No
Wakool	<p>Yes</p> <p>Stage 1 through to 3A water restrictions.</p>	<p>Water allowance per household of 600kl on user pays system.</p> <p>Potable water = 75c/kl for the first 600kl & then \$1.20/kl</p> <p>Raw water is not metered, so unlimited use applies indoors and restrictions apply for outdoor watering depending on what stage Council applies (currently on Stage 3A Water Restrictions).</p>	-	No

LGA	Water Restrictions Imposed	Excess Water Charges and Calculations	Average Annual Household Water Consumption	Increase In Water Supply
Wentworth	No	\$2.60/kil over 250kl of filtered water (<250kl at \$1.10/kil) \$0.60/kil over 700kl raw water (<700kl at \$0.35/kil)	172kl filtered water 525kl raw water	No

(Information sourced from relevant Councils)

Figure 10 displays the potable water consumption by LGA for the region for the year 2004/05. Six LGA's achieved a reduction in 2004/05 consumption over the previous year (2003/04) while Jerilderie made the biggest gain. Wakool now had the highest rate of consumption in the region after a significant increase in usage and an equally significant reduction in Deniliquin. Wentworth had a huge reduction of 70.5%. Most LGA's are comparable to the average consumption rate achieved by NSW as a whole although Corowa, Deniliquin and Wakool are all considerably higher and Wentworth is significantly lower.

Figure 10: Potable water consumption 2004/05



Potable water quality

According to the latest DEUS Performance Monitoring Report (2004/05), most Councils achieved a 100% success rate for all potable water samples tested for physical and chemical water quality standards. Wakool achieved the physical chemical standard on about 90% of their samples. *E.coli* contamination is the primary health-related indicator for water and all Councils achieved 100% in this regard during 2004/05 with the exception of Jerilderie and Deniliquin which achieved about 90%.

These results are similar to those achieved in the previous year.

Water storage

The three major water storages servicing the irrigation areas of the Murray region are Hume, Burrinjuck and Blowering (see map opposite). Figure 11 shows that all three storages commenced the year with significantly lower levels than the year before but by the end of the reporting period (November 2007) the storage levels in Burrinjuck and Hume were slightly above than the corresponding period the year before.

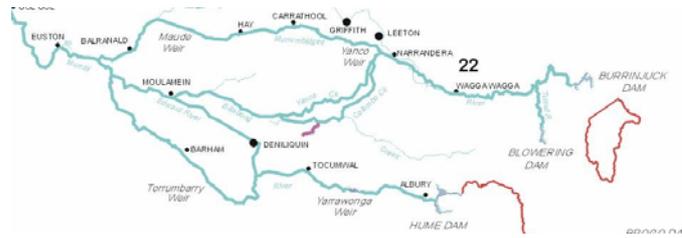
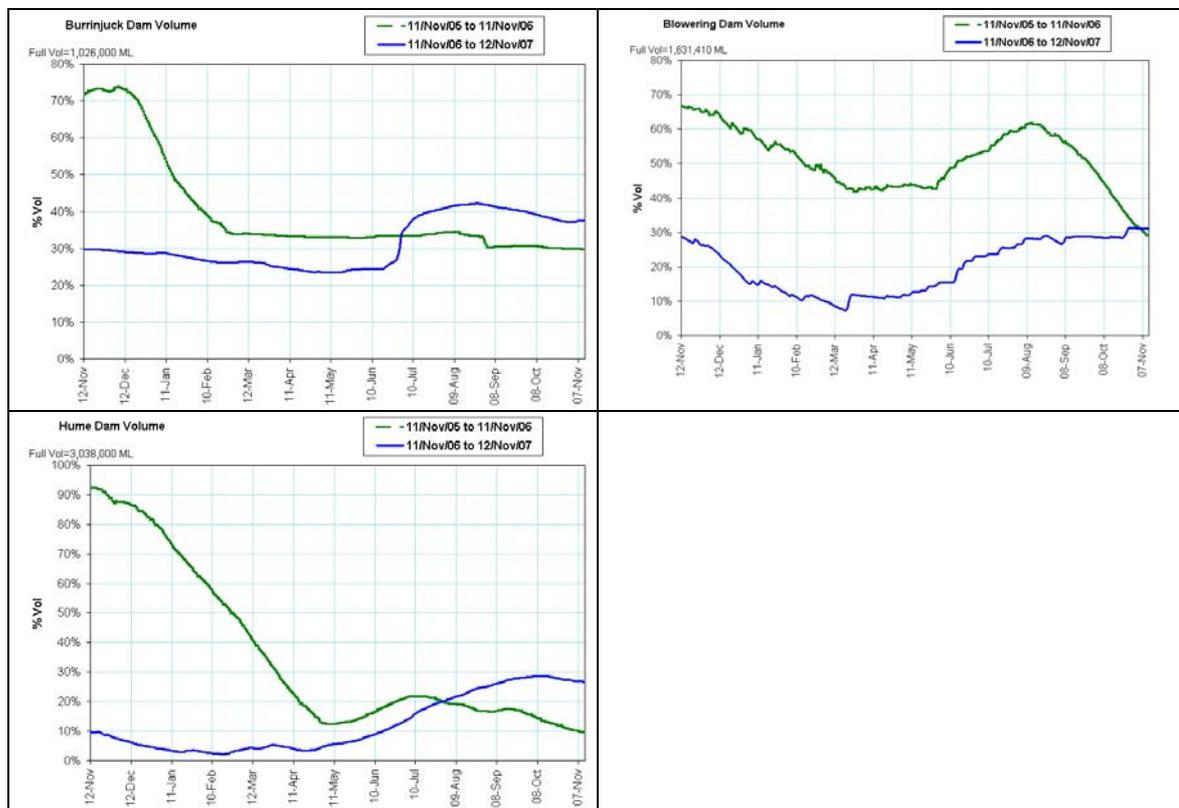


Figure 11: Levels of water storages servicing the region 2005/06



(Source: Waterinfo 2005)

River quality

Algae are the simplest form of plant life. A count of all the algae present (as measured by chlorophyll-a levels) is used to indicate the productivity of aquatic systems. In conditions of warm, poorly mixed, nutrient rich waters, algal counts may grow to extremely high densities. The table below details the number of reported algae outbreaks for each LGA. The amounts of algae and blue-green algae are of interest to SoE reporting because these reflect the impact of human activity and other environmental factors on the aquatic environment, and also the suitability of water for

continued use by humans and other species. Blue-green outbreaks during the 2006/07 are illustrated in Table 11.

Table 11: Outbreaks of blue-green algae during 2006/07

LGA	Were there blue-green algae outbreaks	How many outbreaks	Duration of outbreak
Balranald	Yes	1	-
Berrigan	Yes	1	8 weeks
Conargo	No	-	-
Corowa	Yes	3	12 weeks
Deniliquin	No	-	-
Greater Hume	No	-	-
Jerilderie	Yes	1	8 weeks
Murray	Yes	1	8 weeks
Wakool	Yes	numerous	several weeks
Wentworth	Yes	1	6 months

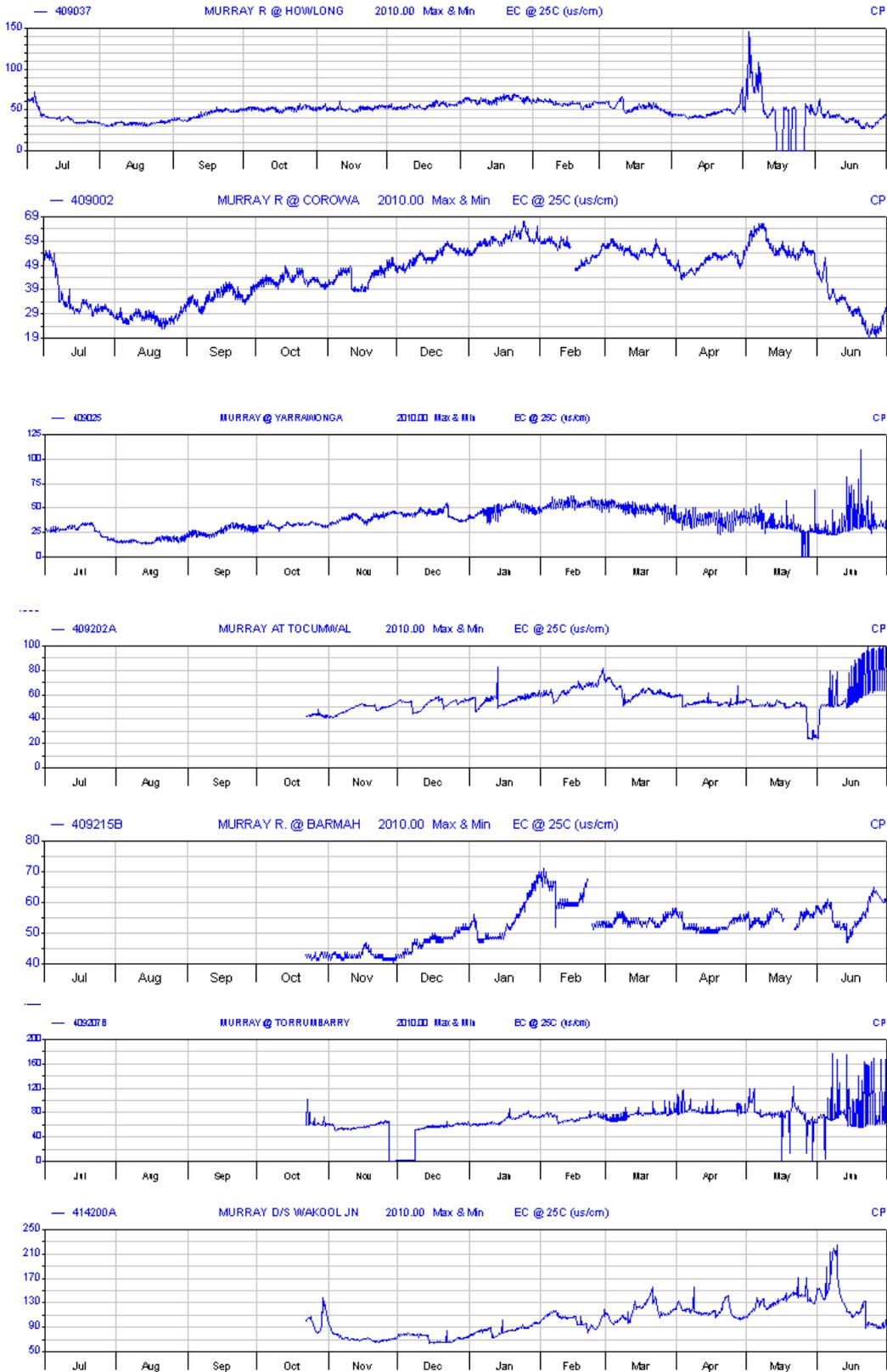
(Information sourced from relevant Councils)

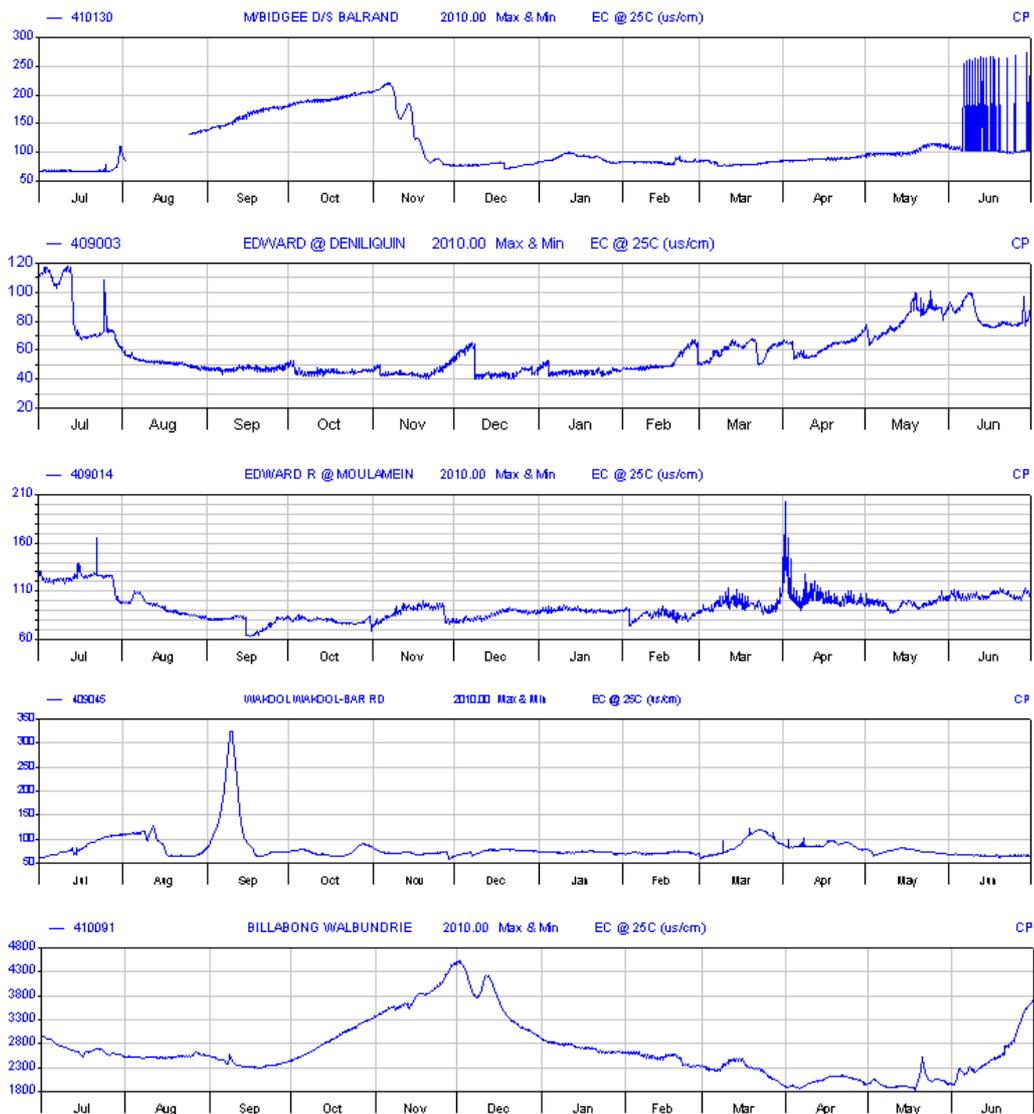
Salinity levels within rivers are an indicator of water quality and therefore river health. Salinity levels can be ascertained by measuring the electrical conductivity of water. A measure of the ability of water to conduct an electric current between electrodes relates to the nature and amount of salts present in the water and increases with concentration. The measurement is usually expressed in microsiemens per centimetre ($\mu\text{S}/\text{cm}$).

Figure 12 shows the results of monitoring electrical conductivity at various locations within the region's rivers for 2005/06. Some observations of the results include:

- Salinity levels generally increase with distance downstream in the catchment. This can be demonstrated in the Murray River by comparing measurements of EC levels at Howlong followed by Corowa, Yarrawonga, Tocumwal, Barmah, Torrumbarry and Wakool Junction.
- The tributaries of the Murray generally have higher salinity levels.
- The Billabong Creek has salinity levels many times higher than other rivers in the region. The EC reading at Walbundrie almost doubles from September to December, peaking at nearly 4500.
- There is no real pattern across the region as to the peaks and troughs of EC levels throughout the year.

Figure 12: Salinity levels in the regions rivers





(Source: Waterinfo 2005)

Stormwater discharge

Only Berrigan Shire advised of any changes to stormwater discharges stating that two new reservoirs were constructed at Tocumwal to collect and store stormwater for recycling and reuse at golf course. No new point discharges to waterways.

Wetlands

There is no new information relating to wetlands.

Groundwater quality

Figure 2 and 3 shows the levels of groundwater salinity within the Murray Irrigation that extends from Moulamein to Berrigan. The results are sourced from MIL's monitoring program. The maps shows that salinity levels in groundwater are higher around the Moulamein and Wakool area and lower in the east around Finley and Berrigan.

Only Wentworth LGA advised of a permit for new ground water bore in 2006/07.

4.4 BIODIVERSITY

There are two quite different fundamental needs that have to be met before it can be ensured that biodiversity is being conserved both for its intrinsic value and for its benefits to humans (including aesthetic and cultural benefits as well as material benefits such as improved agricultural productivity).

The first is philosophical. There must be a concept of stewardship, such that, as humans, we accept a fundamental responsibility to protect biodiversity, and to leave it to the next generation in at least as healthy a condition as it was left to us. An associated requirement is to apply the 'precautionary principle' - that it is better to err on the side of caution than otherwise, as a species or community once gone can never be recovered.

The second requirement is more pragmatic and is a need to know exactly what constitutes the current biodiversity situation, so that changes can be recognised, and corrections made as necessary. This is obviously easier said than done, but at the very least the existence and status of species and communities of concern in region need to be known. Initially such species and communities will be those specified in 'threatened species' legislation, but the process of such listing is very much ongoing, and a concerned management authority must also take account of other species and communities of local concern.

Native flora & fauna

Changes in patterns of the number of species of living organisms and their relative abundance in a given area can occur naturally – either seasonally or after significant events such as fire or storms. However, a significant loss of native species from an area is generally a clear indicator of major ecosystem disturbance such as habitat loss or predation/competition from introduced species.

It can be difficult to identify all species in an area, and even more difficult to monitor their populations. A significant decline in the abundance and condition of a particular species can be indicative of general trends for native species in the area in general.

No Councils within the study area reported any changes to biodiversity in their region during 2006/07.

NSW Environmental Trust Grants 2006

There were no Environmental Trust Grants given in the Murray region in 2006.

New listings under the Threatened Species Conservation Act 2006/07

The following final and preliminary listings apply to species known to inhabit parts of the Murray region.

Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions - proposed endangered ecological community

The NSW Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions as an ENDANGERED ECOLOGICAL COMMUNITY on Part 3 of Schedule

1 of the Act. The listing of Endangered Ecological Communities is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- That the endangered ecological community is located within the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions.
- Sandhill Pine Woodland has been recorded in the far south-western portion of the NSW South Western Slopes bioregion near Urana, extending through the Riverina bioregion, from Urana – Narranderra district in the east, into the southern part of the Murray-Darling Depression bioregion, as far west as the South Australian border. It is currently known from the Balranald, Berrigan, Carrathool, Central Darling, Conargo, Corowa, Deniliquin, Hay, Murray, Narranderra, Urana, Wakool and Wentworth Local Government Areas, but may occur elsewhere in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions.
- Throughout its distribution, the community occurs in relatively small patches, typically on red-brown sandy loams. In the Riverina and NSW South Western Slopes bioregions, these soils are associated with the beds of prior streams or source-bordering dunes adjacent to streams and lake beds, which are restricted and distinctive landforms on the extensive riverine plain. Further west, in the Murray-Darling Depression Bioregion, the community occurs on lunettes associated with dry lake beds, and as patches within a mosaic of vegetation types on extensive sandplains.
- The dominant community species is *Callitris glaucophylla*, that typically occupies red-brown loamy sands with alkaline sub-soils and the alluvial plain of the Murray River and its tributaries, and on parts of the sand plain in south-western NSW.
- In the Riverina bioregion and far south-western portion of the NSW South Western Slopes bioregion, the community is typically associated with prior streams and aeolian source-bordering dunes, which are scattered within an extensive alluvial clay plain dominated by chenopod shrublands.
- In the Murray-Darling Depression bioregion, the community occurs as scattered patches on sandhills and lunettes within an extensive aeolian sandplain dominated by woodlands of mallee eucalypts or belah. Sandhill Pine Woodland typically comprises of an open tree canopy with a sometimes sparse, but highly variable ground layer dominated by grasses and herbs, sometimes with scattered shrubs and/or small trees. The structure and species composition of the community varies depending on disturbance history and temporal variability in rainfall.
- Sandhill Pine Woodland has undergone a large reduction in its geographic distribution as a consequence of clearing for cropping and pasture improvement (Grant 1989, Smith and Smith 1990, Scott 1992, Porteners 1993, Benson *et al.* 2006 cited in DECC 2007b). This has occurred within a time span appropriate to the life cycle of the dominant species of the community, with much of the clearing taking place between 1880 and 1910 (Grant 1989 cited in DECC 2007b). Some clearing for cereals and irrigated agriculture has occurred later in the twentieth century. A recent synthesis of available map data indicates that the disruption of

this community has been reduced by 40 - 75 % (Mackenzie and Keith 2007a cited in DECC 2007b). Fragmentation of the remaining stands is likely to have resulted in a large reduction in the ecological function of the community due to the small population sizes of many constituent species, enhanced risks from environmental stochasticity, disruption to pollination and dispersal of fruits or seeds, and likely reductions in the genetic diversity of isolated populations (Young *et al.* 1996, Young & Clarke 2000). The geographic distribution of the community continues to decline as a consequence of small-scale clearing (Sluiter *et al.* 1997 cited in DECC 2007b).

Allocasuarina luehmannii Woodland in the Riverina and Murray-Darling Depression bioregions - proposed endangered ecological community

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list *Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression bioregions as an ENDANGERED ECOLOGICAL COMMUNITY on Part 3 of Schedule 1 of the Act. The listing of Endangered Ecological Communities is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- *Allocasuarina luehmannii* Woodland has undergone a large reduction in its geographic distribution as a consequence of clearing for cropping and pasture improvement (Smith and Smith 1990, Sluiter *et al.* 1997, Benson *et al.* 2006 cited in DECC 2007). This has largely occurred within the past 170 years, a time span appropriate to the life cycle of the dominant species of the community. In many cases, remnants are confined to roadsides or other small fragments (Sluiter *et al.* 1997), while some stands of the community have been reduced to a few isolated trees (Scott 1992 cited in DECC 2007). Fragmentation of the remaining stands is likely to have resulted in a large reduction in the ecological function of the community due to the small population sizes of many constituent species, enhanced risks from environmental stochasticity, disruption to pollination and dispersal of fruits or seeds, and likely reductions in the genetic diversity of isolated populations (Young *et al.* 1996, Young & Clarke 2000 cited in DECC 2007). The geographic distribution of the community continues to decline as a consequence of small-scale clearing (Sluiter *et al.* 1997 cited in DECC 2007).
- Many of the remaining stands of *Allocasuarina luehmannii* Woodland are degraded by overgrazing, which has resulted in simplification of community structure, changes in species composition, invasion of weeds and soil erosion. Overgrazing by domestic livestock and feral herbivores, including rabbits and goats, has resulted in a scarcity of woody understorey plants and a lack of regeneration of palatable trees and shrubs. Consequently, senescent trees are not replaced with new individuals and there is a prolonged trend of stand degeneration. Overgrazing also reduces structural complexity, plant species diversity and habitat suitability for vertebrate fauna of the community. The sandy-textured soils of *Allocasuarina luehmannii* Woodland are sensitive to erosion as a result of trampling by hooved animals and burrowing by rabbits. These impacts are exacerbated under drought conditions. Collectively, these processes have

resulted in a large reduction in the ecological function of the community (Sluiter *et al.* 1997, Benson *et al.* 2006 cited in DECC 2007b).

- *Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression bioregions is the name given to the ecological community dominated by Buloke (*Allocasuarina luehmannii*), sometimes with co-occurring tree species, that typically occupies patches of red-brown loamy sands with alkaline sub-soils on the alluvial plain of the Murray River and its tributaries in south-western NSW. *Allocasuarina luehmannii* Woodland is characterised by the assemblage of species listed in paragraph 2 and typically comprises an open tree canopy with a sparse and highly variable ground layer dominated by grasses and herbs, sometimes with scattered shrubs and/or small trees. The structure and species composition of the community varies depending on disturbance history and temporal variability in rainfall.
- *Allocasuarina luehmannii* Woodland has been recorded in the southern part of Riverina bioregion from near Urana and Mulwala in the east to the Barham district, and may extend as far west as Euston in the southern part of the Murray-Darling Depression bioregion. The community occurs in small patches within this range and is currently estimated to cover less than 500-1500 ha (Benson *et al.* 2006 cited in DECC 2007b). It is currently known from the Balranald, Berrigan, Conargo, Corowa, Deniliquin, Murray and Wakool Local Government Areas, but may occur elsewhere in the Riverina and Murray-Darling Depression bioregions.

Pterostylis despectans - proposed critically endangered species listing

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list the terrestrial orchid *Pterostylis despectans* (Nicholls) M.A.Clem. & D.L.Jones as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act. Listing of critically endangered species is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- In New South Wales the species is known only from a single population discovered in 2005 near Moama, in the Riverina Bioregion (Thackway & Cresswell 1995 cited in DECC 2007b). The site is within the Murray Local Government Area. Several surveys of Riverina grassland and regional Travelling Stock Reserves, including McDougall *et al.* (1993 cited in DECC 2007b), Benson *et al.* (1997 cited in DECC 2007b), Webster (1999 cited in DECC 2007b), and McNellie *et al.* (2005 cited in DECC 2007b), did not record *P. despectans* and it seems likely that the species is extremely rare in New South Wales.
- Grazing, fire and other management regimes for conservation of *P. despectans* have not been determined. The species may be particularly endangered by current or changed future management of stock access and grazing, especially if a stock-watering point were to be added to the site. Some grazing may be beneficial for the native vegetation of the site and total stock exclusion may be detrimental, in part because of annual exotic grasses and *Romulea* spp. which are encroaching from a road drain and an easement on the site (K. McDougall *in litt.* Cited in DECC 2007b). McDougall (pers. comm. 2007 cited in DECC 2007b) states that as of September 2005 the *Romulea* was strongly associated with areas

of disturbed soil in, or adjacent to, the drain and the easement, and suggests that while cockatoo digging of *Romulea* bulbs may be contributing to the spread of that weed by soil disturbance, a higher risk of a major spread of *Romulea* (and other weeds) lies in a coincidence of a rain event with a major visitation by cattle, leading to intensive soil disturbance and subsequent weed spread.

Prasophyllum sp. 'Moama' - proposed endangered species listing

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list the terrestrial orchid *Prasophyllum* sp. 'Moama' (D.L. Jones 19276) as an ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Listing of endangered species is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- *Prasophyllum* sp. 'Moama' (D.L. Jones 19276) is known in NSW only from one locality, discovered in 2005, near Moama. The site is in the Murray Local Government Area, and the Riverina Bioregion of Thackway and Cresswell (1995). Several previous surveys of Riverina grassland and regional Travelling Stock Reserves in New South Wales (including McDougall *et al.* 1993, Benson *et al.* 1997, Webster 1999, and McNellie *et al.* 2005) did not detect this species. The species is not endemic to New South Wales, occurring also in Victoria in small to moderate-sized populations within a radius of about 50 km from Echuca (Rouse 2002).
- Natural grassland communities in the Riverina area of NSW and Victoria have undergone significant declines since the advent of European settlement and stock-grazing. McDougall *et al.* (1993) report high levels of decline of this general vegetation type. However, past decline of the specific habitat in which this *Prasophyllum* occurs in New South Wales cannot be confidently inferred as yet. It has been suggested (Benson *et al.* 1997:13, apropos a region to the north of the Moama site) that post-settlement declines of natural grassland communities may have been less severe on the NSW side of the border. Nevertheless, the assignment of the Moama grass/forb community to a distinct vegetation type (McDougall *et al.* 1993, DIPNR 2004, McNellie *et al.* 2005), that is rare and restricted in NSW, but shared with at least one occurrence of the same *Prasophyllum* species in Victoria (Terrick Terrick – K. McDougall pers. comm. May 2007), suggests that the Moama occurrence may be best regarded as a naturally isolated occurrence within NSW. This interpretation may be supported by the co-occurrence of *Prasophyllum* sp. 'Moama' (D.L. Jones 19276) and another rare orchid, *Pterostylis despectans*, at both the Moama site and at Terrick Terrick (Vic.), in both cases within habitat assignable to 'Community R1.1' of McDougall *et al.* (1993).

Crinia sloanei - proposed vulnerable species listing

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list Sloane's Froglet *Crinia sloanei* Littlejohn 1958 as a VULNERABLE SPECIES in Part 1 of Schedule 2 of the Act. Listing of vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- *C. sloanei* has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in New South Wales (see Thackway and Cresswell 1995). It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats.
- The specific threats to *C. sloanei* are not well understood. Chytridiomycosis, an infectious disease caused by the amphibian chytrid fungus *Batrachochytrium dendrobatidis*, has not been recorded in *C. sloanei* or any other *Crinia* species in eastern Australia, but is known to infect four other *Crinia* species from the same phylogenetic group as *C. sloanei* in Western Australia (Read *et al.* 2001, DEH 2006). Other threats include degradation of habitat quality through clearing and changes in flooding regimes, predation and climate change.

Eucalyptus leucoxylon subsp. *pruinosa* - vulnerable species listing

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list *Eucalyptus leucoxylon* F. Muell. subsp. *pruinosa* (F. Muell. Ex. Miq.) Boland, Yellow Gum as a VULNERABLE SPECIES in Part 1 of Schedule 2 of the Act. Listing of vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- *Eucalyptus leucoxylon* subsp. *pruinosa* is a tree species which, in New South Wales, occurs at the bases of sandy rises and on loamy clay flats on the floodplains of the Murray River and its tributaries in the Riverina Bioregion (Thackway and Creswell 1995).
- In New South Wales, *Eucalyptus leucoxylon* subsp. *pruinosa* is currently known from several localities along the Murray River valley, including a concentration of six stands to the west of Moulamein, and small scattered occurrences between Barham and Euston. A disjunct occurrence of the species reported from near Boorowa on the central western slopes has been investigated and refuted. The number of records of *Eucalyptus leucoxylon* subsp. *pruinosa* are relatively few for NSW, despite a number of systematic vegetation surveys being carried out across its range (Porteners 1993; Sluiter *et al.* 1997; Horner *et al.* 2002; McNellie *et al.* 2005).
- Most remaining stands of *E. leucoxylon* subsp. *pruinosa* stands are threatened by a lack of regeneration due to grazing and soil compaction. Other threats operating at some of the stands include canopy dieback, small-scale clearing and weed invasion (Benson *et al.* 2006). These threats contribute to a continuing decline of the species.

Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penplain, Nandewar and Brigalow Belt South Bioregions - endangered ecological community listing

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions as an ENDANGERED ECOLOGICAL COMMUNITY in Part 3 of Schedule 1 of the Act. The listing of Endangered Ecological Communities is provided for by Part 2 of the Act.

The Scientific Committee (DECC 2007b) has found that:

- Inland Grey Box Woodland may be found in the local government areas of Albury, Berrigan, Bland, Blayney, Boorowa, Cabonne, Carrathool, Conargo, Coolamon, Cootamundra, Corowa, Cowra, Deniliquin, Dubbo, Forbes, Gilgandra, Greater Hume, Griffith, Gundagai, Gunnedah, Gwyder, Inverell, Jerilderie, Junee, Lachlan, Leeton, Liverpool Plains, Lockhart, Mid-western Regional, Murray, Murrumbidgee, Narrabri, Narrandera, Narromine, Parkes, Temora, Upper Lachlan, Urana, Wagga Wagga, Wakool, Warrumbungle, Weddin, Wellington and Young. Inland Grey Box Woodland may occur elsewhere in the nominated bioregions. Bioregions are defined in Thackway and Creswell (1995).
- Grassy box woodlands of NSW were rapidly targeted for agriculture development and extensively cleared or degraded (Benson 1991) so that by 1948 few remnants existed and those were often degraded by grazing (Beadle 1948). Inland Grey Box Woodland has been greatly reduced in area, highly fragmented and greatly disturbed by clearing, cropping, grazing, introduction of exotic species and addition of fertiliser.

New Species Recovery Plans 2006/07

The following Species Recovery Plans which are applicable to this report, were approved during the reporting period.

- *Recovery Plan for the Large Forest Owls* adopted October 2006.

Vegetation clearing

Clearing vegetation is one of the major pressures on terrestrial ecosystems – both native ecosystems and agricultural lands. For this reason it is a key indicator in SoE reporting. In December 2005, the responsibility for the regulation of vegetation clearing in rural areas was transferred from local government to the Catchments Management Authorities. Councils still control vegetation in urban areas, mainly through the use of Tree Preservation Orders.

Councils participating in this SoE report advise as follows in regards to vegetation clearing activities (see Table 12).

Table 12: Vegetation clearing activities for each LGA

LGA	Tree Preservation Order	Applications for vegetation clearing	Approvals for vegetation clearing	Roadside Management Plan	Permit required for firewood collection
Balranald	Yes Tree removal in the urban area is dependent on assessment of hazard or nuisance practice, and to replace removed trees with more appropriate trees or shrubs. Tree removal in the rural area must comply with the Native Vegetation Act and adopted CMA practices. Replacement plantings to compensate for tree removal required.	3	3 approvals total area cleared was less than 5 hectares	No	No
Berrigan	No No tree preservation order in village or urban zone. Native Vegetation Act administered by MCMB for rural zones.	-	-	Yes Central Murray Roadside Vegetation Survey & Management Guidelines BSC Vegetation Management Plan Linear Reserves Project	Yes

LGA	Tree Preservation Order	Applications for vegetation clearing	Approvals for vegetation clearing	Roadside Management Plan	Permit required for firewood collection
Conargo	Yes – Shire has DCP for the protection of trees within the lands known as Sandhill country being the sand dune formations indicated on the LEP maps. Replacement trees for tree removal required.	Nil	Nil	Yes – Conargo Shire Council Roadside Vegetation Management Plan	No
Corowa	Yes Replacement trees for tree removal required in rural areas only.	Nil	Clearing now controlled through Murray Catchment Management Authority	Yes	Yes
Deniliquin	Yes – only rural land within riparian corridor and on Council land i.e. street trees, nil rural land clearing approved by Council and nil street trees removed. Replacement trees for tree removal required.	Nil	Nil	Yes- Plan in conjunction and funded by the MCA.	No

LGA	Tree Preservation Order	Applications for vegetation clearing	Approvals for vegetation clearing	Roadside Management Plan	Permit required for firewood collection
Greater Hume	No	Nil	Nil	Yes – Council has three road side vegetation management plans for roads considered to have significant vegetation. Agreements for management of these roadsides are in place in conjunction within the Murray CMA.	Yes
Jerilderie	Yes – Only in a limited area, not required in the village zone area. Replacement plantings for tree removal required.	Nil	Nil	Yes	Yes
Murray	No Replacement plantings for tree removal required.	Nil	Nil Permits issued by DWE or CMA	Yes – The Murray Shire Vegetation Management Plan 2000	No
Wakool	Approval required for tree removal in sand hill areas	Nil	Nil	A roadside vegetation Management Plan was developed in 2000.	Nil
Wentworth	Yes - 1 DA received to remove a total of five willow trees. Replacement plantings for tree removal not required.	18	3 54 hectares	No	No

(Information sourced from relevant Councils)

Weeds

Noxious weed control on roads and reserves is an important component of most Council's weed management plans. Under the arrangements, Councils and RLPB's can apply for Operational Grants to assist in the treatment of specific weeds on roads and other land. Priority is given to implementing agreed State and regional weed management plans.

For 2007/08 the NSW Government has provided \$100,000 to assist local control authorities in implementing new weed incursion control. Weed control coordination for 2007/08 (DPI 2007) are listed in Table 13.

Table 13: Weed control coordination for 2007/08

LGA	\$
Balranald Shire Council	\$0
Berrigan Shire Council	\$0
Conargo Shire Council	\$0
Corowa Shire Council	\$43,000
Deniliquin Shire Council	\$0
Greater Hume Shire Council	\$67,000
Jerilderie Shire Council	\$17,100
Murray Shire Council	\$0
Wakool Shire Council	\$51,000
Wentworth Shire Council	\$0

(Source: DPI 2007)

During 2007/08 a total of \$283,000 has been provided to the Eastern and Western Riverina for new and continuing group projects. These projects and budget allocations are listed in Table 14.

Table 14: New and continuing group projects budget allocations for 2007/08

Group	\$
Eastern and Western Rare and Isolated St Johns Wort 2006-2011	61,000
Eastern and Western Riverina Alligator Weed Wah Wah Irrigation District 2006-2011	16,000
Eastern and Western Riverina Hardhead Thistles 2004-2009	2,000
Eastern and Western Riverina Silverleaf Nightshade 2004-2009	57,000
Eastern and Western Riverina Prairie Ground Cherry 2006-2011	13,000
Eastern and Western Riverina Serrated Tussock 2006-2011	5,000
Eastern and Western Riverina Chilean Needlegrass 2006-2011	7,000
Eastern and Western Riverina Coolatai Grass 2005-2010	19,000
Eastern and Western Riverina Lower Murray Darling Regional Weed Strategy 2005-2010	48,000
Eastern and Western Riverina Noxious Weeds Project Officer 2007-2010	35,000
Eastern and Western Riverina Black Willow in Murray and Murrumbidgee Catchments 2007-2012	20,000
Total	283,000

(Source: DPI 2007)

Council's commitment to weed control during the 2006/07 period is listed in Table 15.

Table 15: Council's commitment to weed control during 2006/07

LGA	Commitment to Weed Control	Means of Weed Control including biological weed control	Other Weed Control Activities
Balranald	Yes	Council operates 1 staff member on Shire weed eradication and farmer education, advice, policy and practice in accordance with the adopted Regional Weed Strategy	On farm weed inspections One Council staff member committed to weed control. Regular patrols of Shire roads
Berrigan	Yes	Undertaken by Central Murray County Council Council spraying of roadside verges to maintain visibility of guide posts.	
Conargo	Yes	Council engages Central Murray County Council. Regular patrols for noxious weed identification. Weed mapping	
Corowa	Yes	Noxious weed policy currently on draft subject to Council approval. Ongoing commitment to NSW DPI in relation to Weed Control co-ordination within its area.	Regular inspections and spraying programs by Council targeting noxious weeds along road reserves and Council land. Inspection carried out for noxious weeds along the Murray River floodplain between Corowa and Mulwala.
Deniliquin	Yes	Undertaken by Central Murray County Council	In some circumstances, undertaken by Council on a needs basis.
Greater Hume	Yes	Noxious Weeds Policy – November 2006 Class 4 Weeds Management Plan – November 2006 Commitment to Eastern Riverina Noxious Weeds advisory group Commitment to Riverina Noxious Weeds Management Plans	Routine mapping of weed infestations. Biological control of St Johns Wort, Patterson's Curse and Horehound. Routine weed spraying across the Shire including local roads and other Council controlled areas. Inspection of portion of the Murray River, Mountain Creek and associated areas.
Jerilderie	Yes	Noxious weed policy Agreement with CMA for riparian areas District Weed Control co-ordination - grants and plans Weed Mapping	Weed spraying programs of Spinny burgrass, Bathurst Burr, African Boxthorn, Silverheat Nightshade, Khaki weed, Horehound & St Johns Wort. Weed mapping Monitoring of waterways including drainage channels.

LGA	Commitment to Weed Control	Means of Weed Control including biological weed control	Other Weed Control Activities
Murray	Yes	Undertaken by Central Murray County Council	Weed spraying program undertaken to control weeds on Council owned land.
Wakool	Yes	Class 4 Noxious Weeds Management Plan developed in 2006 to minimise the negative impact of Class 4 noxious weeds on the economy, community and environment of NSW. Application for weed control co-ordination assistance grant for 06/07 totalling \$48,413 including private property inspections (on-ground and aerial), training, publicity and other co-ordination and planning. Biological weed control	Weed spray of roadside shoulders Weed mapping Waterway inspections Survey of Edwards River for Saggitaria Survey of Shire for Parthenium weed Participation in schools program "Weed Warriors"
Wentworth	Yes	Committed to Lower Murray Darling Weed strategy implementation Council inspection policy Council weed spraying policy	Established 2 biological control sites Spray program targets high priority weeds GPS Mapping data base

(Information sourced from relevant Councils)

Pest animals

Prior to 2005/06 locust plagues were not reported in the study region by Councils (see Table 16). Mouse plagues are not uncommon throughout the area but the incidences of these are affected, to a very great degree, by climatic conditions. The ongoing drought conditions have witnessed animals such as kangaroos coming closer to areas of human habitation in search of food. Feral animals including foxes and rabbits remain of most concern to the Councils (see Table 16).

Table 16: Council's commitment to locust and pest animal control during 2006/07

LGA	Incidence of Locust Outbreak 2006/07	Action taken	Further information concerning pests 2006/07
Balranald	0	-	-
Berrigan	0	-	Feral animals
Conargo	0	Council work in conjunction with Murray RLPB for control programmes within the Shire.	Feral animal pests including foxes and cats, rabbits and hares.
Corowa	0	-	-
Deniliquin	0	-	-

LGA	Incidence of Locust Outbreak 2006/07	Action taken	Further information concerning pests 2006/07
Greater Hume Shire	0	Council accepts responsibility for locust control when required.	Feral rabbits and foxes are of concern to the Shire and are targeted by the Council in conjunction with Hume RLPB.
Jerilderie	0	-	-
Murray	0	-	-
Wakool	0		Feral foxes and pigs
Wentworth	0	-	-

(Information sourced from relevant Councils)

Dogs & cats

It is critical for the environmental health of a regional area for effective control of dogs and cats as a means of curbing the rate of increase of feral animals. Wild dogs and cats are major predators of native fauna as well as posing significant problems for farming livestock. Effective control of dogs and cats ensures that missing companion animals can be reunited with their owners whilst Council revenue from pet registration fees can help mitigate some of the costs incurred by Council. Council's commitment to dog and cat control is listed in Table 17.

Table 17: Council's commitment to dog and cat control during 2006/07

LGA	Dogs Seized	Cats Seized	Further information
Balranald	25	0	One part time animal ranger operating in Balranald and Euston.
Berrigan	109	7	One full time Ranger/Local laws officer to enforce companion animals legislation
Conargo	6	0	Council acts on complaints in relation to dog control issues.
Corowa	-	-	Council indicated a commitment to dog and cat control during 06/07
Deniliquin	144	15	-
Greater Hume Shire	134	37	
Jerilderie	18	0	-
Murray	37	5	-
Wakool	28	43	Feral cats caught using traps and destroyed.
Wentworth	172	0	Introduction of a dog control officer for impounding of animals.

(Information sourced from relevant Councils)

Bushfire

Current fire regimes, including the incidence of bushfires, in relation to ecosystem requirements are of concern to SoE reporting because they indicate the pressure on native ecosystems of human activities in the environment. Bushfire incidences and changes to Councils bushfire prone land during the 2006/07 reporting period can be found in Table 18.

Table 18: Bushfire incidences and changes to bushfire prone land during 2006/07

LGA	Changes to Bushfire Prone Categories	Incidence of Bushfires	Bushfire Section 66 Notices
Balranald	No	0	-
Berrigan	No	68*	-
Conargo	No	2	-
Corowa	No	0	-
Deniliquin	No	0	-
Greater Hume Shire	No	-	-
Jerilderie	No	-	-
Murray	Yes	0	-
Wakool	No	44*	-
Wentworth	No	4	-

(Information sourced from relevant Councils) * incidents include bushfires and motor vehicle accidents

4.5 HUMAN SETTLEMENT

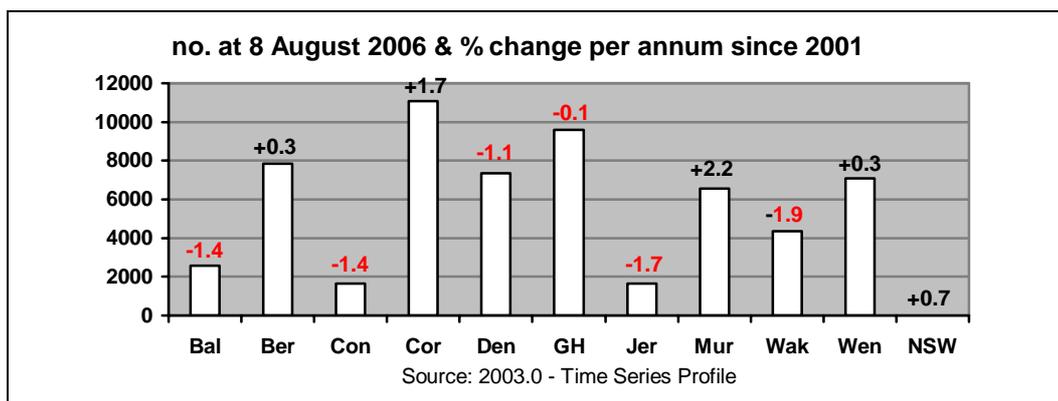
The composition of a population (i.e. its characteristics) underpins the changes of the pressure of the human population on the environment. There is a direct impact on the level of resources required to provide the range of services and infrastructure required to maintain a given quality of life in areas such as health, housing, education, employment, transport, resource use and management and construction. An understanding of this and of the dependency ratio in the population means that, as the composition characteristics of a population change, environmental, economic and social pressures can be minimised.

Demographics

Figures have recently been released for the last Census conducted on August 8th, 2006. However, time series figures are only available for the LGAs as 'enumerated population' – that is based on where people were located on Census Night.

Figure 13 shows the 'enumerated' population (location on Census night) for each LGA and provides a percentage change from the previous Census in 2001, given as a percentage per annum.

Figure 13: Enumerated Population at 2006 Census



The two fastest growing LGAs are Murray and Corowa Shires. Berrigan, Wentworth and Greater Hume all remained fairly steady. While four smallest LGA's in the region, Balranald, Conargo, Jerilderie and Wakool, as well as Deniliquin all declined by about 1-2% per annum since 2001.

Corowa has continued to increase and is the most populous LGA of those participating in this SoE.

The population of each LGA in relation to its area is given in Table 19. Clearly, Deniliquin has the greatest density with a large population and small area based around the township. Of the larger 'rural' LGAs, Berrigan and Corowa have the highest densities, while Balranald, Conargo, Wentworth and Jerilderie all have densities below 1 person / km².

Table 19: Population of each LGA at 2006 Census in relation to its area

LGA	Population	Area (sq km)	Density (persons/km ²)
Balranald	2,570	22,700	0.1
Berrigan	7,830	2,067	3.8
Conargo	1,655	8,751	0.2
Corowa	11,088	2,324	4.8
Deniliquin	7,348	130	56.5
Greater Hume	9,588	5,746	1.7
Jerilderie	1,640	3,375	0.5
Murray	6,554	4,345	1.5
Wakool	4,339	7,520	0.6
Wentworth	7,079	26,269	0.3

(ABS Census)

Socio-economic status

Table 20 details the unemployment rates and median incomes for each of the LGAs from Census statistics. Apart from Wentworth, all the LGAs were below the national unemployment average of 5.3 %. However all the LGA's median incomes are below the national weekly average of \$466. Only Balranald LGA increased unemployment between to the two Census periods.

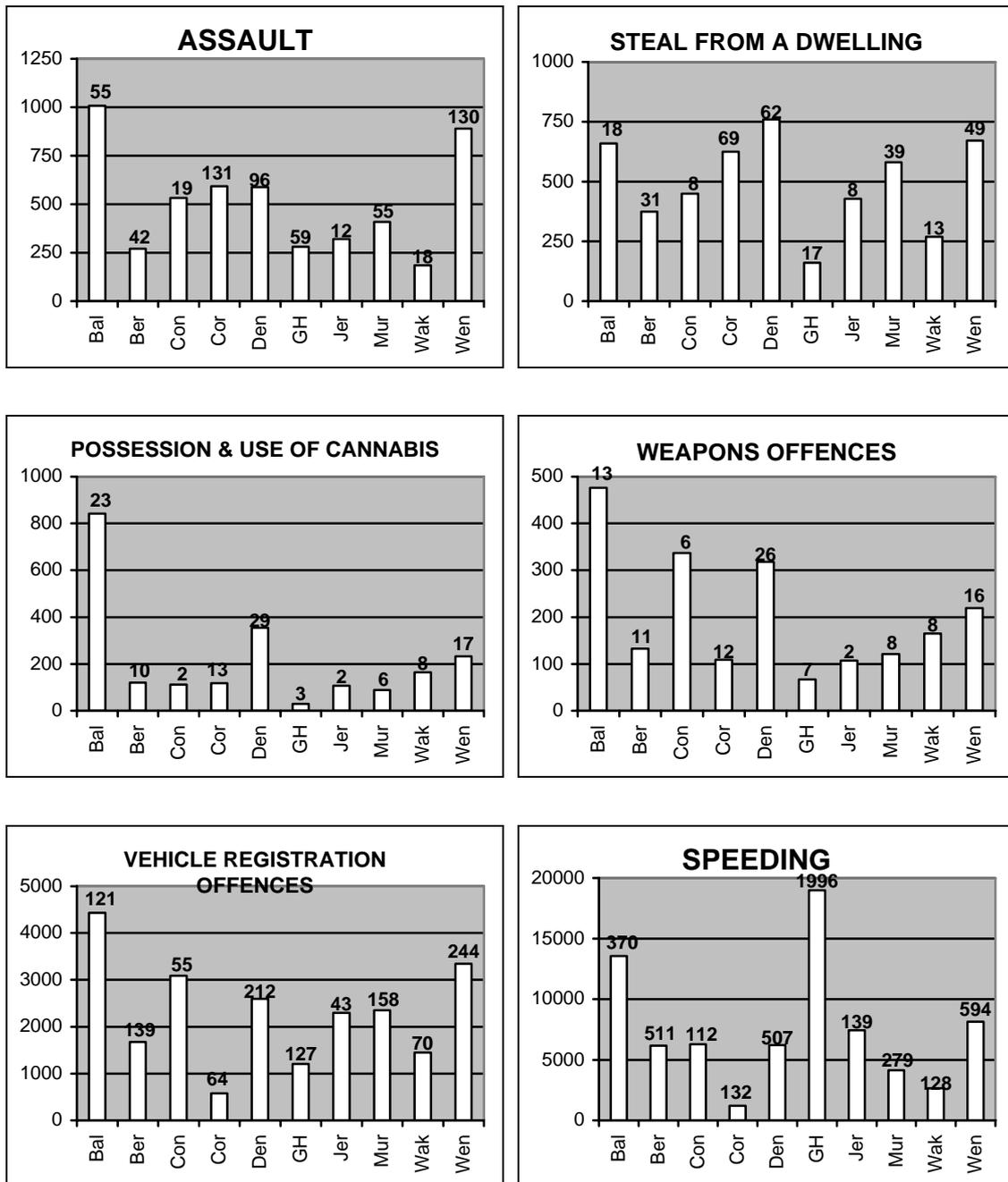
Table 20: Unemployment Rate at 2006 and 2001 Census and Median Income in 2006 for each LGA

LGA	Unemployment 2006 (%)	Unemployment 2001 (%)	Median Income (2006) (\$/week)
Balranald	4.7	3.8	396
Berrigan	4.2	4.3	387
Conargo	1.5	2.0	427
Corowa	4.8	-	389
Deniliquin	5.1	6.5	404
Greater Hume	3.7	-	410
Jerilderie	3.3	3.5	419
Murray	4.8	5.2	393
Wakool	3.5	4.1	372
Wentworth	5.3	5.3	385

(ABS Census)

A selection of crime statistics for participating LGA's produced by the NSW Bureau of Crime Statistics and Research is shown in Figure 14. Caution needs to be exercised in interpreting these statistics because of the low base from which they stem in many circumstances. Likewise direct comparisons on the number of incidents between LGA's should not be undertaken because of the differences in the size of respective populations. However, by expressing the number of incidents per 100,000 of the population allows for some comparison to be made.

Figure 14: Recorded crime statistics 2006
rate per 100,000 population & number of incidents



(Source: Bureau of Crime Statistics & Research, New South Wales)

Effluent treatment & disposal

Monitoring results for performance of sewerage treatment works are available for Berrigan, Corowa, Deniliquin, Greater Hume, Jerilderie and Wentworth. This monitoring is undertaken by the Department of Energy, Utilities and Sustainability

(DEUS). The most recent results are from 2005/06 and reveal that Berrigan and Corowa achieved less than 100% compliance with the 90 percentile requirement of the DEC licence for Biochemical Oxygen Demand (BOD), although Corowa did improve slightly from the previous year. The other Councils achieved the 100% compliance, which is an improvement for Deniliquin from the previous period.

For Suspended Solids (SS), Wentworth was the only Council to again achieve the DEC licence requirement (90 percentile). Corowa improved from previous years, while Deniliquin, Greater Hume and Berrigan decreased slightly. Jerilderie remained stable.

In relation to changes to sewerage treatment plants; Corowa advises that plans have been made for a new sewerage treatment plant at Mulwala with construction to commence in August 2008. Wakool Shire Council advised that they completed construction of Murray Downs new sewerage treatment plant (\$121,000 final payment, of \$.1.2 million). Berrigan also advised that approximately \$30,000 was spent on 'screen extractors' at the Finley sewerage treatment works.

Balranald, Conargo, Deniliquin, Jerilderie and Wentworth did not change or invest money in alterations or development to sewerage treatment plants over the last reporting period.

Waste to landfill

The amount of urban waste generated and disposed of (either legally or illegally dumped) indicates the pressure of towns and the associated waste on the environment through potential contamination of soils and groundwater's and the physical area of land used for waste disposal. It is one indicator of the sustainability of towns. Management and Council control of waste landfill sites during this reporting period can be found in Table 21.

Table 21: Management and control of waste landfill sites during 2006/07

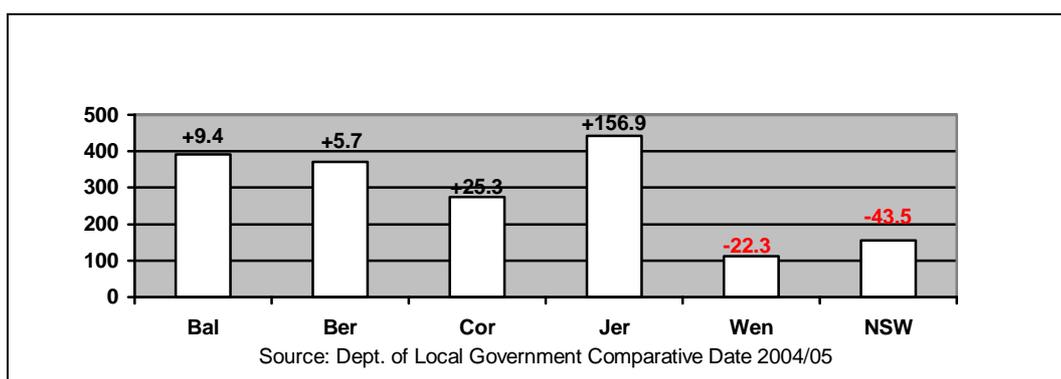
LGA	Waste to landfill	Change from last report	Location of landfill sites	Location of private or other landfill sites
Balranald	1,000 tonnes	-	Balranald and Euston	-
Berrigan	3756 tonnes (2188 – Berrigan) (1568 – Tocumwal)	↓	Berrigan	Tocumwal – rubble, green waste and recyclables only and Finley recycling centre
Conargo	Not recorded		Pretty Pine, Conargo, Blighty, Wanganella and Boorooban	-
Corowa	2,500 tonnes	↓	Corowa and Howlong.	Kerbside domestic waste disposed of at Albury City Council landfill.
Deniliquin	6682 tonnes	↓	North Deniliquin (5km NW of town)	-

LGA	Waste to landfill	Change from last report	Location of landfill sites	Location of private or other landfill sites
Greater Hume	2,000 tonnes to Council landfill	↓	Brocklesby, Culcairn, Henty, Holbrook, Mullengandra, Walla Walla and Woomargama.	Transfer stations at Burrumbuttock, Gerogery and Jindera
Jerilderie	720	↑	Jerilderie Town Landfill and Jerilderie Common Landfill	
Murray	6,000 tonnes	↑	10km north of Moama (50ha in size)	
Wakool	500 tonnes		Moulamein, Goodnight, Koraleigh and Wakool. Barham Transfer Station	Kerbside collection goes to private landfill; Patho Landfills Victoria (approx 950 tonnes of kerbside collection)
Wentworth	3,778 tonnes	↑	Pooncarie (31 tonnes), Ellerslie (21 tonnes), Pomona (446 tonnes), Buronga (3280 tonnes).	Wentworth and Dareton waste transfer stations

(Information sourced from relevant Councils)

The latest publication for the Department of Local Government Comparative Data was in January 2007 for 2004/05 data. Figure 15 compares domestic waste by LGA between 2003/04 and 2004/05. Figures were not available for a large number of Shires. Jerilderie had the largest increase of 156.9%, while Corowa, Berrigan and Balranald increased by smaller amounts. Wentworth was the only LGA to decrease their volume of waste. Wentworth is producing much less than the other Shire's volume of waste per capita. Balranald, Berrigan, Corowa and Jerilderie are all well above the state average of waste per capita.

Figure 15: Domestic waste 2004/05 kg per capita & % change from previous year



Materials recycling

Recycling is the process by which used products are sent to a factory where they are reprocessed to produce the same product or a different one. Examples include recycling glass from old bottles and jars to make new glass products, and the recycling

of paper into newspaper and other paper products. Another form of recycling relates to organic matter such as foodstuffs or garden wastes like leaves or grass clippings which, when composted, make useful soil additives.

The level of recycling is of concern to SoE reporting because it is a response towards minimising the amount of waste requiring disposal into landfill each year, and thus reducing the impact of human settlements on the natural environment. The existence of markets for recycled materials, and their rates of uptake, indicates the viability of recycling as a self-sustaining industry into the future. Management and control of Council's recycling program during 2006/07 can be found in Table 22.

Table 22: Waste recycling during 2006/07

LGA	Recycling Program	Volume Recycled	Change from last report	Nature of Program
Balranald	Yes	250 tonnes	↑	Waste deposited at Balranald and Euston landfill sorted into Metals, Green waste, Oils, Batteries, Timber and concrete rubble, Chemical containers (note rubber/tyres is 99% recycled by retailers)
Berrigan	Yes	789 tonnes	↓	Fortnightly kerbside collection by Cleanaway in a joint contract with Moira Shire (Victoria) from about 2,400 premises across four towns every fortnight.
Conargo	No	-		-
Corowa	Yes	977 tonnes	↑	Fortnightly kerbside collection of recycling provided to all residences in urban area
Deniliquin	Yes	11.6 tonnes	↓	Voluntary recycling at landfill for paper, steel, aluminium, cardboard, oil, batteries and glass.
Greater Hume	Yes	500 tonnes	↓	3,000 households and commercial premises provided with fortnightly kerbside collection of recyclables. Some recycling provided at all 10 waste facilities.
Jerilderie	No	-		-
Murray	Yes	5700 tonnes	↑	Services available in Moama, Mathoura, Cumerjunga and a rural service collecting from 2,600 homes.
Wakool	Yes	274 tonnes (47 tonnes via skips)	↓	All towns and villages (except Mallan and Goodnight) have kerbside pickup. Servicing about 1,100. Collection from recycling skips at landfills and Burraboai and Mallan. Most of the Shire's residents can access recycling facilities.

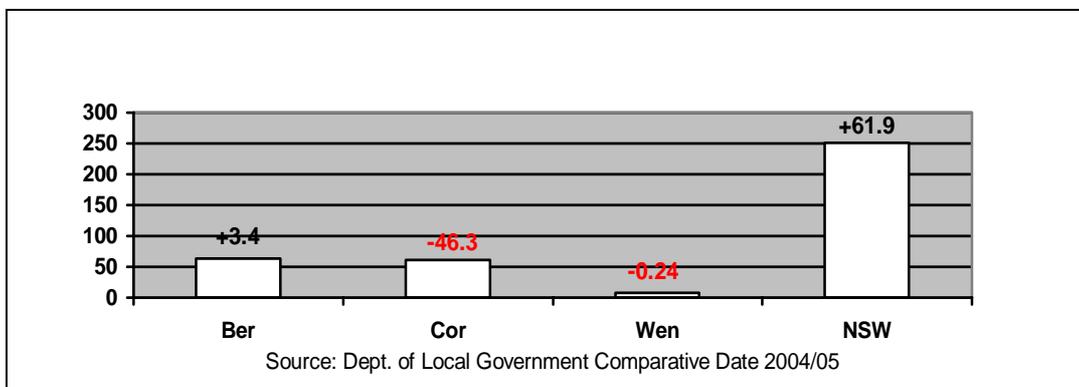
LGA	Recycling Program	Volume Recycled	Change from last report	Nature of Program
Wentworth	No	-		-

(Information sourced from relevant Councils)

Seven of the 10 Councils have in place some form of regular recycling program or activity. This is a positive and encouraging impact for the environment within these locales.

Only three LGAs have recycling information available in the Department of Local Government Comparative Data. This figure demonstrates how the region is well below the state average (see Figure 16).

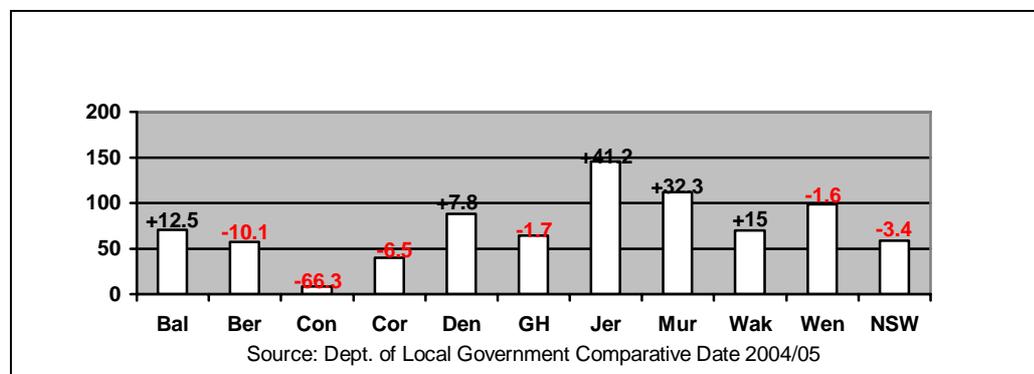
Figure 16: Recyclables 2004/05 kg per capita & % change from previous year



Recreation

Figure 17 compares the annual expenditure on recreation across the study region for the financial year 2004/05. It is interesting to note how closely the LGAs follow the state average but with only two of the LGAs are below the state average. Conargo fell further below the average with a 66% reduction. Jerilderie and Murray Shires had the biggest increases.

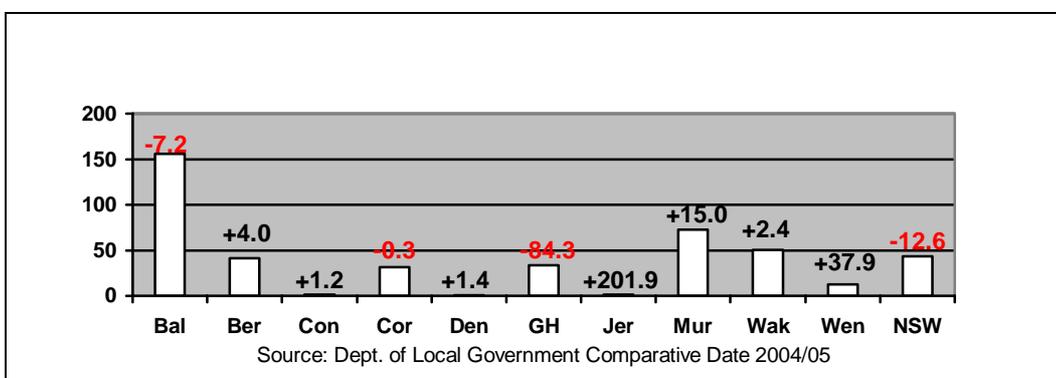
Figure 17: Recreation 2004/05 \$ per capita & % change from previous year



Community services

Figure 18 reveals the impost on LGA budgets to provide community services which are in particular demand in rural or isolated regions. As an average the state of NSW provided \$44.00 per capita on community services throughout 2004/05 which was a reduction of 12.6%. Three LGAs within the study area exceeded the state average. These were Balranald, Murray and Wakool. Murray and Wakool are only marginally ahead of the state average however Balranald provided more than three times this figure with per capita expenditure in excess of \$150.00 per capita. Greater Hume had the greatest reduction of 84%. Only three LGAs witnessed a reduction in spending on community services and this expenditure is anticipated to continue to increase with the increasing demands of an ageing Australian population.

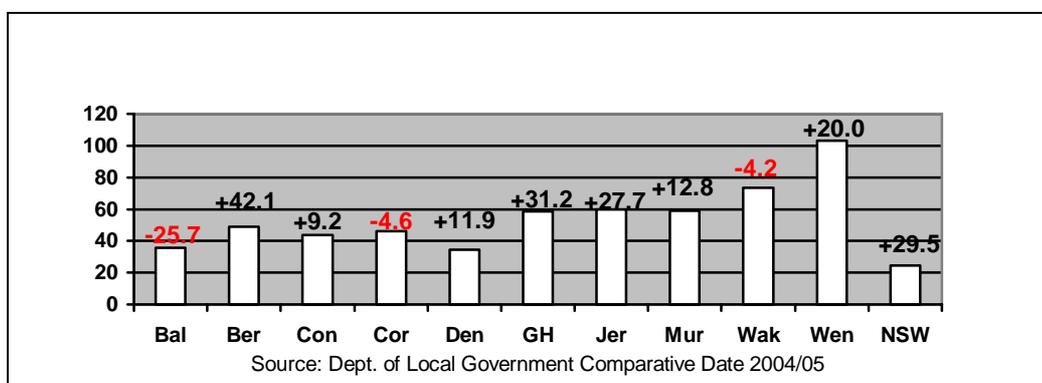
Figure 18: Community services 2004/05 \$ per capita & % change from previous year



Environment & health

Figure 19 compares the expenditure on environmental management and health by LGA for 2004/05 with the financial year 2003/04. It is of note that each LGA spends significantly more on environmental management and health than the state average of about \$25 per capita. Wentworth is the LGA with the highest expenditure within the region and had an increase of 20.0%. It is of significant note that only three LGAs had a reduction.

Figure 19: Environmental management and health 2004/05 \$ per capita & % change from previous year



Noise

Noise pollution can be defined as unwanted noise and does not need to be determined by decibel level alone. Noise can be an unpleasant nuisance and the degree to which this has an impact on the population is an indicator of the pressure on individual's quality of life in this SoE annual update.

In 2006/07 there was a number of noise complaints were made across the region. The information in the table below demonstrates that noise is generally not an environmental issue in the region and is restricted to a few isolated instances.

Table 23: Noise complaints during 2006/07

LGA	Maintenance of Complaint Register	Number of complaints received	Nature of complaint
Balranald	Yes	2	Noise from household dogs and other animals investigated
Berrigan	Yes	3	Motorbikes x2 Powertools
Conargo	No	0	
Corowa	Yes	4	-
Deniliquin	Yes	4	Motorcycle noise
Greater Hume	Yes	9	Truck parking x4 Water pump Powertools and idling cars Loud music x3
Jerilderie	No	-	
Murray	Yes	5	Dogs barking Powertools Vehicles
Wakool	Yes	-	Barking Dogs
Wentworth	Yes	1	Coolroom

(Information sourced from relevant Councils)

Heritage listings

There is a growing awareness among Australians of heritage places and objects and the importance of preserving them.

The number and condition of heritage listing indicates the community's response to identifying and preserving heritage, as well as the value seen in heritage in maintaining a sense of place in a region – an important factor in our quality of life.

Identification of new places is an on-going process. Places and objects that are no longer listed should be identified individually, and the reason for de-listing provided, e.g. through decay or change of use that can involve demolition or inappropriate renovation. Heritage listings during 2006/07 is listed in Table 24.

Table 24: Heritage listings during 2006/07

LGA	Number of New Heritage Listings	Details of Listing
Balranald	No new listings	
Berrigan	No new listings	
Conargo	No new listings	
Corowa	No new listings	
Deniliquin	No new listings	
Greater Hume	No new listings	
Jerilderie	No new listings	
Murray	No new listings	Council is reviewing Heritage items in the Shire for possible inclusion in the Draft LEP
Wakool	1	The former Moulamein courthouse located at the junction of the Billabong Creek and the Edwards River. The courthouse was opened to the public in October 1899 and fulfils the NSW Assessment Criteria for Cultural Significance. It was nominated for inclusion in the NSW State Register at the beginning of 2006. – Still awaiting a decision.
Wentworth	No new listings	

(Information sourced from relevant Councils)

Aboriginal sites

All LGA's within the study area are aware of the importance of identifying and preserving places and objects of Aboriginal heritage. Most council's advised that no new Aboriginal objects or places were identified within their LGA during 2006/07.

However, Greater Hume advised that there may have been some Aboriginal artefacts identified during the construction of the Hume Highway but details have not been conveyed to Council.

Also an Aboriginal 'place of significance' was identified and gazetted adjacent to the Murrumbidgee River on the Southern edge of Balranald Urban Area.

5. CONCLUSION

All Council's participating in this supplementary report appear to continue to take small steps towards a more positive contribution to the environment. Council's continue to become more aware of their responsibilities to the environment as a result of new environmental legislation as well as a general increase in awareness on environmental issues across the community as a whole. It is important that Council's continue to minimise the impact of their activities on the environment.

At the conclusion of the Principal SoE Report three years ago, a number of recommendations were made to assist Council's in addressing their responsibilities to the environment. The recommendations are not binding on any Council and are intended as a guide or stimulus for consideration of local government environmentally related projects and activities.

It is worth reiterating these recommendations for the benefit of this third supplementary report.

- Maintain a file on SoE reporting for the purposes of collecting environmental information as it becomes available. This will make the task of data collection easier for Council staff and allow for consideration of environmental matters that otherwise might be missed. The use of GPS and mapping systems could be particularly useful in this regard.
- Support government initiatives for improved land management practices that reduce the rate of land degradation.
- Seek funding and support from all possible sources to implement environmental improvements.
- Take the opportunity in the LEP review process to strengthen controls where appropriate for the protection of the environment and in particular the Murray River.
- Prepare Potentially Contaminated Lands Registers.
- Investigate opportunities to change Council work practices that reduce motor vehicle usage (eg. improvements in technology).
- Prepare long term (say 20 years) strategic plans across the whole of the LGA that includes aims and objectives for achieving net gain for the environment.
- Monitor major developments within their LGA for compliance, particularly those that have the potential to detrimentally impact on the environment.
- Seek environmental enhancements through conditions of consent on development applications (e.g. re-vegetation).
- Ensure that urban infrastructure such as potable water supply, sewer and stormwater drainage continues to be constructed and upgraded as resources permit.
- Encourage water conservation and recycling measures in new development as well as energy efficient design.

- Take a stronger stance on illegal activities such as vegetation clearing and firewood collection.
- Ensure staff are fully briefed and understanding of changes to environmental legislation and other regulations relating to the environment.
- Continue to initiate measures that reduce waste to landfill and increase waste recycling.
- Endeavor to be responsive to complaints on environmental matters (eg. odour and noise).
- Undertake reviews of heritage listings.

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